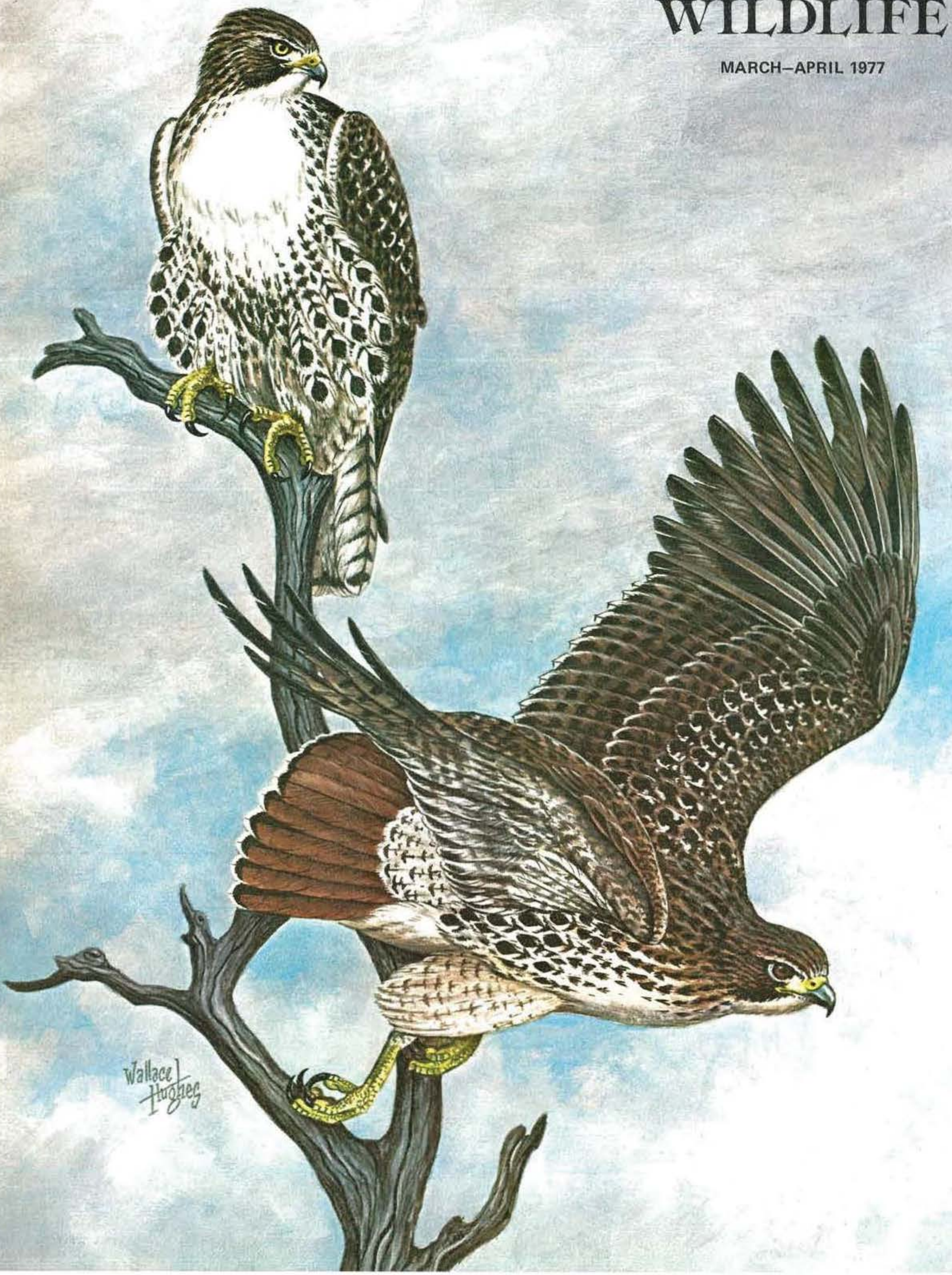
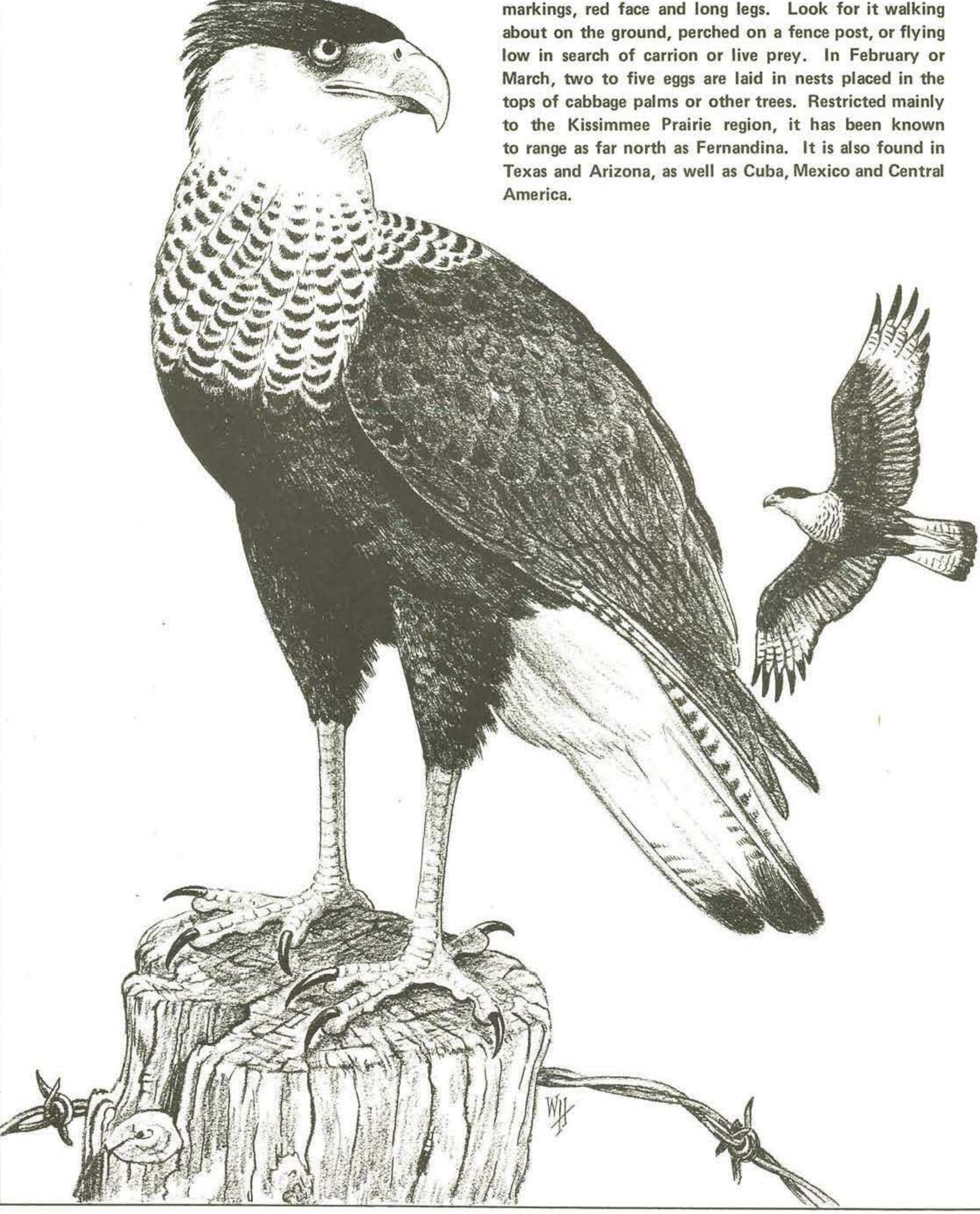
FLORIDA WILDLIFE

MARCH—APRIL 1977



ENDANGERED FLORIDIAN ...... THE CARACARA

Now declining in numbers, the Audubon's Caracara or "Mexican Buzzard" is a bird of the central Florida prairies. It is easily recognized by its light wing and tail markings, red face and long legs. Look for it walking about on the ground, perched on a fence post, or flying low in search of carrion or live prey. In February or March, two to five eggs are laid in nests placed in the tops of cabbage palms or other trees. Restricted mainly to the Kissimmee Prairie region, it has been known to range as far north as Fernandina. It is also found in Texas and Arizona, as well as Cuba, Mexico and Central America.



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Large size, white breast and russet tail identify the adult red-tailed hawk (lower) while the immature bird (upper) is more drab. Although an occasional red-tail becomes a "chicken hawk," most eat rodents and are usually beneficial to farmers.

From a painting by Wallace Hughes

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Another look at the

JAGUARONDI

By Wilfred T. Neill

Some years ago, in the pages of FLORIDA WILDLIFE, I wrote about the jaguarondi—a long-tailed black cat that had lately turned up in our state. Now it's time to take another look at this animal, to review its current status in Florida.

When full grown, the jaguarondi is about twice the size of an ordinary housecat. It is short-legged and long-tailed, with a rounded, kitten-like head. Jaguarondis come in two color phases, one of them a rich reddish, the other a dark grayish. The red phase, sometimes called the eyra, has not been seen in Florida. Gray specimens, glimpsed at night or in thick brush, look quite black, and the sighting of them has often given rise to "black panther" reports.

As far back as the early 1950s, my interest was aroused by such reports, especially those that came from qualified observers. From verbal accounts and newspaper articles, it was evident that some people really had seen a slinky, cat-like animal with a long tail. Sightings seemed to cluster in the Ocala National Forest, Marion County; along the Gulf coast from Taylor through Levy County; in Hillsborough County; and in extreme southern Florida. There were, however, a few sightings at other points in the state.

One night in 1951, Randy Smith and I were driving through the Big Scrub country of the Ocala National Forest, an area from which several convincing jaguarondi reports had come. One of these cats suddenly crossed the highway in our headlights. We had been collecting reptiles, and were wearing headlamps and heavy boots. We jumped out of the jeep and chased the animal through the scrubby underbrush. Every time we got close to it, it would turn, face us, open its mouth to the widest, and give out with a sneeze-like hiss. Such actions are very characteristic of the jaguarondi. True, most wild members of the cat family will snarl and spit when molested; but the jaguarondi somehow manages to make the most threatening grimace, and to hiss as sharply as a striking snake.

This particular specimen escaped under a barbwire fence. Nevertheless, I was firmly convinced that the jaguarondi did indeed inhabit our state; for I was already familiar with this cat in its native homeland of Mexico and Central America. There was no mistaking the identity of the Big Scrub animal, and I decided to investigate the matter more fully.

In any sort of biological investigation, it's wise to begin with a search through the appropriate wildlife magazines and technical journals; for someone might already have published some information bearing on your problem. And as it happened, I discovered a useful article in FLORIDA GAME AND FISH, the magazine that later become FLORIDA WILDLIFE. In the June, 1942, issue of FLORIDA GAME AND FISH, A. Hyatt Verrill reported several encounters with an animal that was almost surely the jaguarondi. Interestingly, these encounters had taken place in areas from which I had accumulated some believable records of a long-tailed black cat.

When I first began trailing the jaguarondi in Florida, I was directing a research project sponsored by the well-known naturalist Ross Allen. For years, Ross had subscribed to a clipping service that covered the state, and that provided him with copies of all newspaper articles about wildlife. Searching through his clipping files, I discovered several more convincing reports of jaguarondis.

At that time I was also writing and drawing a weekly series called "Creatures of the Wild", which ran in about 120 Florida newspapers. One week I featured the jaguarondi, with remarks about its possible presence in Florida; and quite a few people wrote in to say that they had seen the animal. To judge from the letters, some of the correspondents had actually seen housecats, stray dogs, otters, bob-

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cats, or perhaps even the very rare Florida panther (which is tawny yellow, not black). But other writers apparently had seen actual jaguarondis. And best of all, one man showed me the skin of a large jaguarondi that had been trapped near Jena, Dixie County. He said it was the second one to have been trapped there.

In 1954 I gave a talk before the Florida Academy of Sciences. One of the listeners, Dr. Joseph Moore, who at that time was Biologist for the Everglades National Park, told me that Park rangers and visitors had turned in a good many reports of a long-tailed black cat. Some of the reports were impressive, especially since the rangers were keen observers and were quite familiar with the native wildlife.

Also in 1954, E. J. Teagarden wrote to the editor of FLORIDA WILDLIFE, describing an animal he had seen in Osceola County. His description, plus his rough sketch of the beast, emphasized the blackish coloration, long tail, short legs, and snarling grimace. The letter and sketch were published in the February, 1954, issue of FLORIDA WILDLIFE; and from them I felt sure that Mr. Teagarden had indeed encountered a jaguarondi.

By this time I had accumulated a large number of convincing reports of the jaguarondi. From these a curious geographic pattern began to emerge: Most of the sightings were in state or national forests and parks! This could only mean that someone had deliberately stocked jaguarondis in protected areas. There was, however, a concentration of records well outside any park or forest, within about a 30-mile radius of Chiefland, Levy County.

Here I'll not review all of my earlier experiences on the trail of the jaguarondi, for I have already done so in FLORIDA WILDLIFE for July, 1961. My records were also published by Drs. A. DeVos, R. H. Manville, and R. G. Van Gelder in their study of introduced mammals throughout the world. Suffice it to say that eventually I found a jaguarondi dead on the highway near Lake Placid in Highlands County. I saved the skin and skull—the first Florida specimen to reach a scientific collection.

I also learned why these cats suddenly appeared in various parts of our state. A Florida writer, who died about 20 years ago, specialized in books on wildlife and American Indians. For many years he had been convinced that a mythical beast, often portrayed by prehistoric Aztec and Maya Indians, actually still existed somewhere in Mexico or Central America. He made trips to find it; but failing to do so, he brought back large numbers of jaguarondis instead. These he turned loose in parks and forests, as well as in the vicinity of his Chiefland home.

And so the mystery of the jaguarondi was solved. What is the status of this animal in Florida today? What role might it play in the ecology of the state's wildlife?

The natural range of the jaguarondi extends from southern Central America northward through the Mexican lowlands into extreme southern Texas and extreme southern Arizona. North of the Mexican border this animal is rare, but farther south it is abundant, especially in thick scrub. In this habitat it feeds on rats, mice, rabbits, birds, snakes, lizards, and insects. However, it will also hunt around waterholes, where it catches frogs, tadpoles, and fishes. It will climb a tree to raid a bird's nest. And it will slip into chicken yards and hen coops—as more than one Floridian discovered back in the 1950s. It prowls both by night and by day.

Some animals, including dogs, are seen and reported as jaguarondi. Because of size, color

FLORIDA PANTHER

BOBCAT

Photos by Leonard Lee Rue III

In short, the jaguarondi is a very adaptable cat, and Florida would seem to provide it with suitable habitat and prey. Yet in my opinion, its numbers have continued to decline in the state. Sightings in the Everglades National Park have dwindled away. A good many of my friends hunt every year around Steinhatchee, Gulf Hammock, the Ocala National Forest, and other areas where the jaguarondi formerly was reported; but they have not seen any of these cats in recent years.

Since I first wrote about the jaguarondi in 1961, I've spent much of my time on the Florida Gulf coast in areas where the animal had often been sighted. I saw one crossing the road between Otter Creek and Cedar Key, Levy County, in 1964. And that same year I picked up a very large one that had been killed by traffic on the highway near Homosassa Springs, Citrus County. But no other records have come to my attention in recent years, nor have I accumulated any more newspaper accounts of supposed sightings.

I couldn't say precisely why the jaguarondi is not thriving in Florida. The biology of an introduced animal is always complex. Food supply, predators, suitable habitat and climate, man's activities, diseases and parasites—all play a role in determining whether an introduced species survives or dies out. Perhaps the jaguarondi can't get its share of the food supply, in the face of competition from so many small native predators such as opossums, foxes, skunks, raccoons, bobcats, hawks, owls, and various snakes. But it would take an intensive investigation to prove or disprove this suggestion.

Here's an interesting postscript to the jaguarondi story. Thousands of years ago, long before the coming of the Indians, a shift toward a warmer and drier climate permitted many western animals to extend their geographic ranges eastward into Florida. A few of these westerners—for example, the scrub jay, the burrowing owl, and the "grampus" or vinegaroon—have survived to the present day in the drier, scrubbier habitats of our state. But most of the animal migrants—the coyote, a western pocket-gopher, a peccary, the jaguar, the ocelot, the margay, a hog-nosed skunk, the California condor, and the Mexican turkey vulture—fell back to the Southwest as the climate grew cooler and rainier. Their former presence in Florida is revealed only by fossil bones.

What has all this to do with the jaguarondi? At the time I was trailing this animal, I was also rambling around Florida with the late H. James Gut, of Sanford. Jim was an amateur—but excellent—paleontologist, who discovered many important fossil beds in the state. One day Jim showed me the fossilized jawbone of some small cat, clearly not the bobcat. I speculated that it was the jawbone of a jaguarondi, and in my FLORIDA WILDLIFE article I published this speculation. For if Florida once harbored animals that today do not range much above the Mexican border, could it not also have harbored the jaguarondi?

Thanks mainly to Jim Gut's pioneering efforts, Florida paleontology suddenly began to flourish. Today we are sure that, ages ago, the jaguarondi did indeed make its own way into Florida from the Southwest. Florida State Museum paleontologists have found its fossilized bones in the Ichetucknee River, Columbia County, and in Rock Springs, Orange County.

And so the Chiefland writer, liberating jaguarondis here and there in our state, was in fact returning the animal to areas it had once occupied thousands of years ago. ●

habits and body shape, a glimpse of any of these animals could be mistaken for jaguarondi.

OTTER

DOMESTIC CAT

Photo by Gene Smith

Talkin' Turkey

shotguns, loads and even shooting techniques to use on that old Spring gobbler

By CHARLES DICKEY

Although hunters and shooters enjoy arguing about choke and gauge, they readily agree on the best combination for wild turkeys during the spring gobbler season. Most hunters prefer a 12-gauge shotgun with full choke.

If you get a shot at all, it's likely to be at 40 to 50 yards. At that distance, we need a pattern which is tight, full choke.

There's no great trick to calling turkeys in the spring and getting them to reply. It's fairly easy to move them towards you, to perhaps within 150 to 200 yards. The hard part is to entice the gobbler within effective range of your shotgun.

There are a great number of things which can happen while a gobbler is walking or strutting that last 100 yards or so. The chances are one of these things will happen and it will be all bad. But if the turkey keeps moving closer, you know you had better shoot quickly and accurately when he does show within 40 or 50 yards. You may get only one shot all season and that one has to be the payoff!

Once a turkey comes within range, you shoot! The closer he approaches you, the more likely something will go wrong. There's no point in letting him move from 45 yards to within 30 yards of you.

Most gobblers are killed when they have two feet on the ground although once in awhile a hunter shoots one on the wing. The best place to shoot a turkey for a clean kill is in the head. A turkey's head is not very large at 45 yards. A tight pattern of shot is needed so that several pellets will hit the head and neck. Full choke holds a tight pattern for more distance than any other standard choke. Some European custom guns are bored tighter but we can skip them.

The length of the barrel has nothing to do with how "hard" a shotgun shoots. Most standard shotguns with full choke have barrel lengths of 26, 28 or 30 inches. A few are made 32 inches long. There's a single-shot on the market with a 36-inch barrel, mostly sold to shooters who like to gamble by shooting at paper targets at an inanimate turkey shoot.

The variance in these barrel lengths will not cause any to shoot harder, tighter or farther. With modern smokeless powder, the maximum energy of the expanding gases from the powder will be reached by the time the shot have traveled 16 or so inches down the barrel. A lot of people don't believe this but I have learned not to argue with them.

A 30-inch barrel has a longer sighting plane than a 26-inch barrel and might be helpful to some shooters. On the other hand, if you stand up to take a crack at a flying or running turkey, the 26-inch barrel might swing faster than a longer barrel. But mostly I don't think it matters about barrel length as long as the shooter is comfortable with it.

When it comes to shotshell selection, there's room for argument. For many years, when manufacturers of firearms and ammunition published catalogs, they recommended shot sizes of BB, 2 and 4 for turkeys. In recent years, they've modified this and recommend shot sizes of 5, 6 and 7½ for good callers and people who understand range and let their turkeys move in before shooting. The Remington catalog says, "BBs, No. 2s, 4s and 5s are best for long shots."

My preferred way of loading three shotshells for turkeys, whether I'm shooting high brass or magnums, is to put a No. 6 in the chamber, a No. 4 for the second shot and a No. 2 for the last round. My reasoning is as follows.

A 15- to 20-pound turkey is a tough old bird to kill cleanly at 40 yards or more. If you hit him in the body only, you probably will not bring him down. Or you may knock him down but before you can fire another shot or reach him, he's off and disappearing in the brush. Although turkeys may sometimes appear to be ungainly, they are fast runners and artful dodgers.

The best chance of knocking one down and keeping him down is a head shot, whether he's running or flying. Incidentally, despite the bulk of a flying turkey, he's easy to miss. They are slow getting airborne but once launched they accelerate fairly well. Because of their size, as with Canada geese, there's a tendency to shoot at them rather than swinging ahead. You shoot behind.

It's hard to be calm when a big turkey goes busting up through the brush and canopy. But I know how the shot should be made—if my nerves will stand it. That's to concentrate on the turkey's head, as though it were a quail, and forget about those massive wings and 15-pound body.

The head and neck are the most vulnerable spots. One No. 6 pellet will penetrate the cranium, enter the brain and instantly kill the bird. One No. 6 shot could penetrate between two neck vertebrae and instantly stop a turkey. But several pellets could hit the head and neck and the turkey keep on running or flying.

There's a certain element of luck in a shot pattern, even for the distance it was designed for. We can aim a rifle at a turkey's cranium and reasonably expect to hit the cranium, if we've done our range work ahead of time. But with a shotgun when we aim at a turkey's head we *hope* one or more of the pellets will penetrate the cranium. We don't have ultimate control.

What we do is try to get the odds on our side. No. 6 shot are heavy enough not to lose shocking and penetrating power at 40 or 45 yards. I'm talking about penetrating a cranium or neck with little protection, not the heart which has massive protection. It would almost take buckshot for that.

The reason for my selection of No. 6 is that it is a happy medium in density (number of shot) but still heavy enough to have good remaining velocity at 45 yards or so. The pattern is dense enough so that with any luck I should hit the head and neck with several pellets. Even if I don't get the lucky one or two in the skull, the others may have enough shock to drop the bird.

Any shot selection is a best guess at what you expect to happen most of the time. I think that with a full-choked 12-gauge shotgun shooting No. 6 shot that nine times out of ten on a head shot at a standing bird I will kill him cleanly. If he ducks his head it doesn't count!

If that is my reasoning for the first shell, why do I use heavier shot for the second and third shells? If I miss or cripple the turkey with the first shot, the bird will run or fly away from me, making the second shot longer. I want the extra shocking power and greater remaining velocity of the heavier shot.

On a flying shot, I say I will swing through the head and shoot it like a quail. That's what I say. That is what I intend to do. But I'm more likely to hit the turkey in the body in the excitement, if I hit it at all. Also, the turkey may be flying away from me and offer only a body shot.

On a flying tail shot, unless you are lucky enough to break a wing bone, it takes the shocking power of large pellets to bring the huge bird down. You get increased shock from penetration but please remember that penetration does not imply that the pellets necessarily go as deeply as vital organs such as the heart.

On a running ground shot, pellets on the heavy side are needed to go through brush and weeds better, as well as for the reasons above.

I often use 2 3/4-inch magnum shells, for a denser pattern, not with any idea that they increase effective range more than a few yards. People who use 2 3/4-inch and 3-inch magnums too frequently think they can reach out to 65 or 75 yards. They can't kill cleanly at those ranges. However, they may cripple a bird that will get away. The wild turkey is too rare and noble a bird to shoot unless you're sure of your shot.

If you are new to turkey hunting, when you finally get that killing shot, as soon as you've fired

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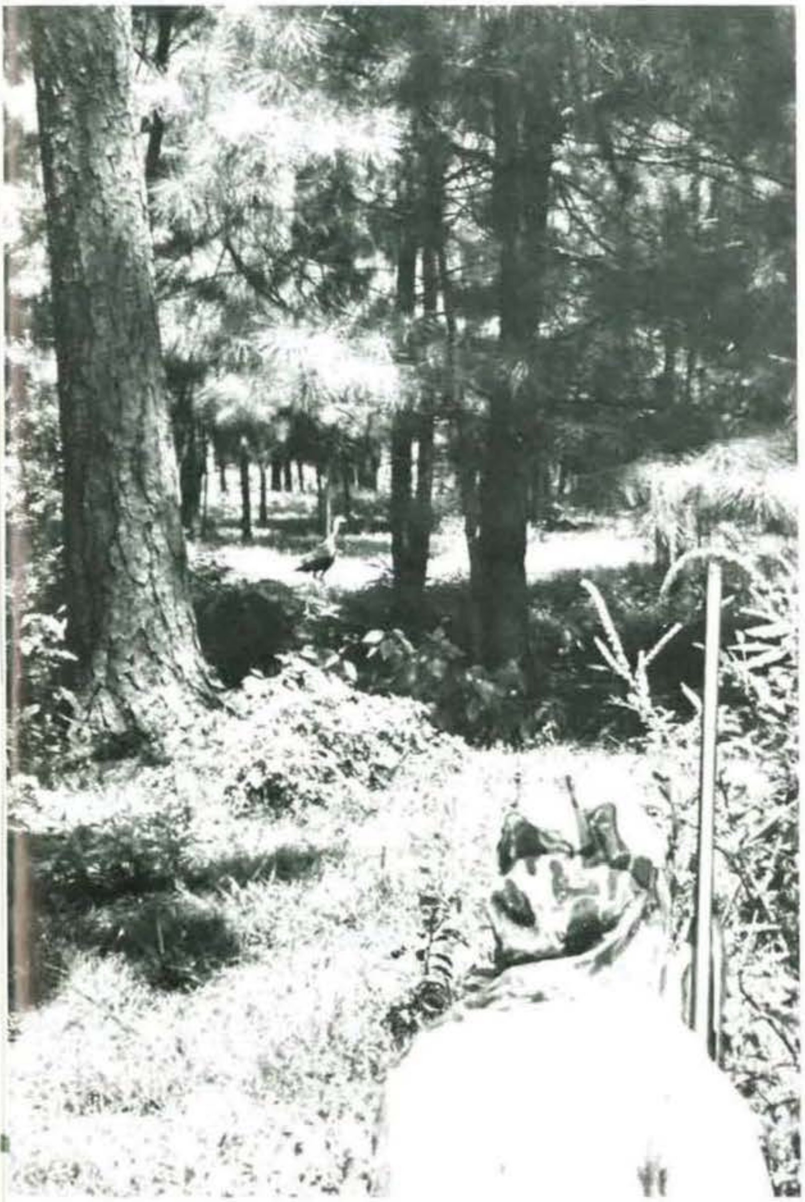
Photo by Charles Dickey



The closer a wary gobbler gets, the greater the chance that something will go wrong. A 15-lb. turkey is a tough old bird to drop, especially if his feet aren't on the ground.

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run towards the bird as fast as you safely can. If he starts to run off, you'll be in better position to knock him down. But remember that with a fatal shot a turkey does a lot of flopping. Let him flop! Don't keep pouring lead into him. I've seen some good meat ruined that way.

Sportsmen frequently ask what is my favorite shotgun. The answer is a gas-operated shotgun.

They have less kick or recoil. Although I weigh 195 pounds of solid bone and muscle, I've never enjoyed being jarred around by a kicking shotgun. Recoil causes flinching and flinching causes missing.

What's fun about getting a headache? One reason I never cared for 12-gauge doubles is their booming recoil. Who needs it? Putting a fancy price on a shotgun does not necessarily make it desirable. Take the Winchester Model 21 side-by-side double which has inflated faster than a politician with his first elected office. The 12-gauge version of the Model 21 kicks like a raging buffalo.

I was once consigned one to try for a couple of years. I didn't know any better and accepted it. I took it out crow shooting and burned about three boxes in an afternoon. My head quit ringing after the third day but it took three weeks for my shoulder to regain a normal color.

I used the double as a burglar gun, propping it unloaded in a closet and only taking it out when friends came to let them think I owned an expensive gun. I shipped it back to the factory before the consignment period ran out.

Remington got the jump on the other manufacturers when they came out with the Model 58 gas-operated shotgun. Shooters bought it in droves, especially the skeet and trap pounders who welcomed the reduced recoil.

The Model 58 was followed in 1963 by the Model 1100 with an improved gas-operated mechanism and quickly cornered the shotgun market. Although most manufacturers now have gas-operated shotguns, Remington has remained dominant in the field because of the 1100.

It's not only a good buy for the money but it has excellent pointing and handling qualities. My 20-gauge 1100 is as gentle as Johnson's baby powder.

The gas-operated shotguns are great for teaching youngsters and women to shoot, especially the 20-gauges. After they realize they are not going to be knocked around, they settle down to the business of breaking targets. They concentrate on shooting rather than worrying about concussion.

With the 20-gauge, as opposed to a .410-bore shotgun, they have a good chance of breaking a reasonable number of clay targets or knocking down birds in flight. A new shooter needs confidence and that comes from hitting flying targets. He'll quickly gain that confidence with a 20-gauge shotgun. With a .410, he's likely to take up golf.

Smith & Wesson, a firearms manufacturer with more experience in handguns than shotguns and rifles, announced in November that it was pushing for a federal system of licensing handgun owners. The company is located in Springfield, Mass. That state requires owner licensing.

Although the company favors owner licensing in all states, it opposes registration which "would simply create a cumbersome, expensive bureaucratic mechanism that would contribute little to solution of the problem of misuse."

Richard McMahon, vice president of Smith & Wesson, stated in the company's position paper that, "We support a federally mandated but locally administered system of handgun owner licensing. Every responsible citizen would have a right to a license to purchase, possess and use handguns subject to local laws on 'carrying' firearms."

McMahon did not say how registration would create a cumbersome, expensive bureaucratic mechanism while licensing would not.

He did not explain how you federally mandate something and then let it be handled locally, the implication being that the federal government would stay out once a federal licensing law was passed.

None of the mechanics on how a responsible citizen would maintain a right to a license were mentioned. Nor were any other protections for the legitimate gun owner mentioned.

Bangor Punta Corporation is the parent company of Smith & Wesson. ●

REMINGTON MODEL 1100
GAS-OPERATED AUTOLOADING SHOTGUN
GAUGES: 12, 20, 28 AND 410

Bunty Dickey cranks in a braggin' bass. Guide John McClanahan is ready with the net. Photo by Charles Dickey

SHINERS & BASS

if it's big bass you're after, a lively golden minnow could be the answer to your dreams

By CHARLES DICKEY

It's more stylish to catch largemouth bass with artificial lures but it's a lot surer to use shiners.

No lure has yet been made which is as attractive to a bass as a golden shiner. No lure precisely duplicates the shape, size, smell, shimmering color or the erratic action of a shiner pierced by a 5/0 hook.

Pioneer Floridians used live bait back when everyone thought a plug was something to stop a leak with. Plenty of fishermen still use shiners, especially if they're after trophy bass.

Although there are no exact statistics, most of the trophy bass—those weighing 10 pounds or more—are probably caught on shiners. The golden

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minnows are proven producers. If you want to catch big bass, most dock owners and guides will suggest shiners as bait—and long hours of waiting.

If patience is an art, then shiner fishing is an art. There's usually a long time between bites but when the action starts you'll get all of the excitement you ever dreamed of.

For three years now, a 11¼-pound bass has hung in our family den. It is the largest one I have ever caught and I have not been overly modest in showing it to visitors. My wife has accused me of dragging in strangers from the street to show off the mounted fish.

I would not say she is jealous of the bass but I believe it would give her great pleasure to catch one at least an ounce heavier. Anyway, not long ago, she agreed to forgive all of my past transgressions if I would take her with me on a trip to Rodman Pool, also called Lake Oklawaha. She knew that I planned to fish with John McClanahan who operates a trophy bass service out of Orange Springs. John was responsible for the bass on the den wall. There is no truth to the rumor that I phoned John and told him Bunty could catch all of the bass she wanted as long as none went over 11 pounds.

Shiners are a favorite bait in cool weather or any time the water temperature drops below 60 degrees or so. The metabolic rate of bass slows and they do not eat as often as when the water is 60 degrees or more. They are not as active or aggressive when they do feed. They usually prefer slow-moving bait such as shiners.

Of course, shiners are favorite foods after the spawning season when the fish are hungry and about any time of year. For a bass to reach trophy size, she has to about become a senior citizen. She is more likely to take slow, natural and easy-to-catch bait than an artificial, especially if the shiner is made accessible. Bass, the same as most fish, don't expend more energy than is necessary when feeding.

John prefers to catch his own shiners. They are better than the ones reared in hatcheries and shipped in, he claims. They are larger, stay alive longer and are more active.

There's an economical reason for catching your own lake shiners. The same as everything else, their price has inflated—$5.00 to $6.00 a dozen for the large ones, if you can find them.

John had a secret shiner honeyhole baited with soybean cake and oatmeal. We used old-fashioned cane poles with 10-pound mono line, a small bobber and a lead shot. A dough of soybean meal and oatmeal was made by adding water and kneading. The trick is to pinch off a small bit a little larger than a BB shot, rub it into a ball and put it on a No. 16 long-shanked hook. If you put on too much bait, the shiners will knock it off. They have small mouths and take only small baits inside their mouths.

My wife, Bunty, proved that she had hidden talents. She landed three or four shiners while I was trying to knead small doughballs. John, of course, is an expert. He wanted shiners from 8 to 11 inches long or larger. When you're fishing for trophy bass, you don't want to be bothered by small bass. Most of the time, only sizable bass hit larger shiners.

Bunty quickly landed several shiners about 10

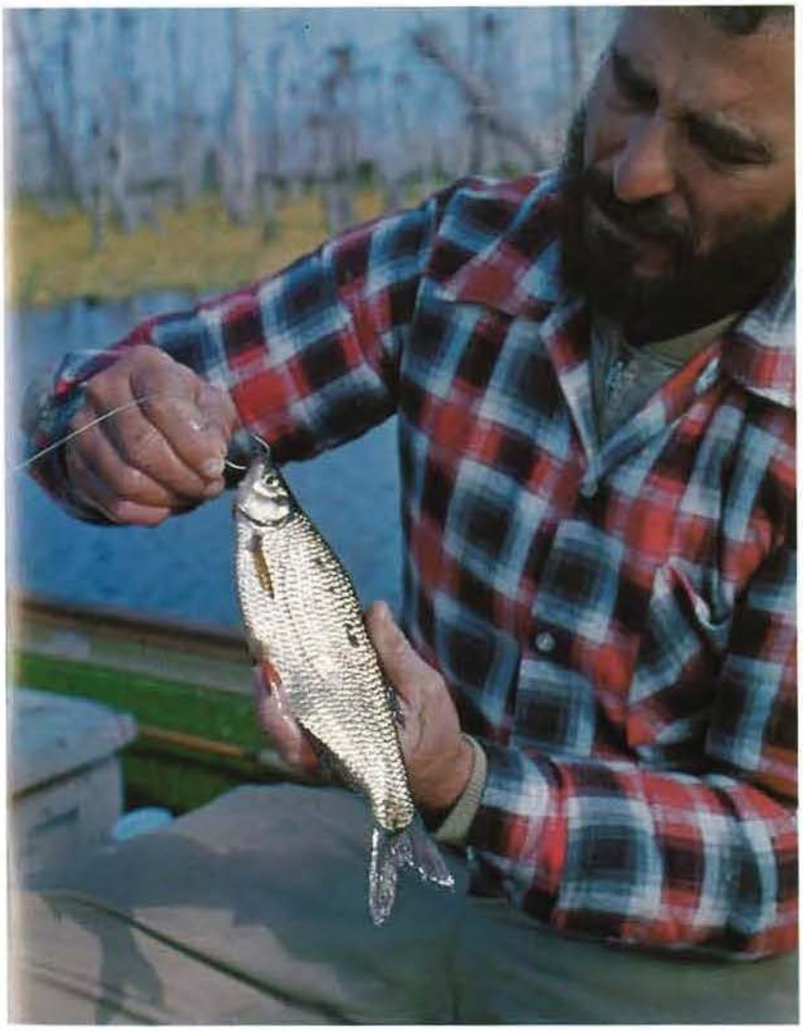
inches long. She loved it! They were larger than many of the trout we work hard to catch each summer in the mountains of North Carolina.

John likes to catch four or five dozen, which he puts in an aerated live well, before heading for the bass. I soon found out why we needed so many.

Part of the time during our three-day trip, I fished with John Ax, who guides for McClanahan following graduate work on Lake Jackson. At other times, we changed off between the two boats, or sometimes fished three to a boat.

There are many ways to hook shiners and fish with them. A favorite way is to hook a shiner through the lips or shoulder and drift with the wind across structure or underwater vegetation. John does a lot of spot fishing, going to areas where he has previously seen lunker bass or had customers miss them. Sometimes he anchors over a hole and you settle down for a long wait.

Most of the time, we fished a technique which was new to me but old hat to many natives. Rodman Pool has many clumps of free-floating vegetation, mostly water lettuce, which drift into coves and inlets. It's a solid mass on top and almost impossible to fish unless you go inside and break a hole. Some of the clumps are an acre or two in size. Bait fish work under them and attract feeding bass. For all I know, lunker bass remain under the clumps for long periods. They are shielded from bright sun, have ample food and plenty of cover. If the water temperature and oxygen content suits them, there's not much reason to leave.



Photos by Charles Dickey

Big bait for big bass, above. John McClanahan lip-hooks a sizable golden shiner bass bait. Bunty Dickey's stringer of shiner-caught bass included this chunky 7-pounder.

To fish under the matted vegetation, John hooks a shiner in the tail, flips it to the edge and tries to get the shiner to swim far back under the mat, where hopefully the bass are. Sometimes the shiners refuse to go under the mat; others seem to want to escape under it.

It takes patience and skill to maneuver a shiner under the floating cover. The main technique is to lightly pull the line. The shiner feels the resistance and wants to swim away from it. Through trial and error, you gradually work the shiner back under the vegetation. As long as he voluntarily swims under it, you just feed slack.

McClanahan rigs all of his reels with 30-pound line. When you set the hook, you may start cranking a mass of vegetation as well as several pounds of bass. There's no chance of working the bass out if you use light line.

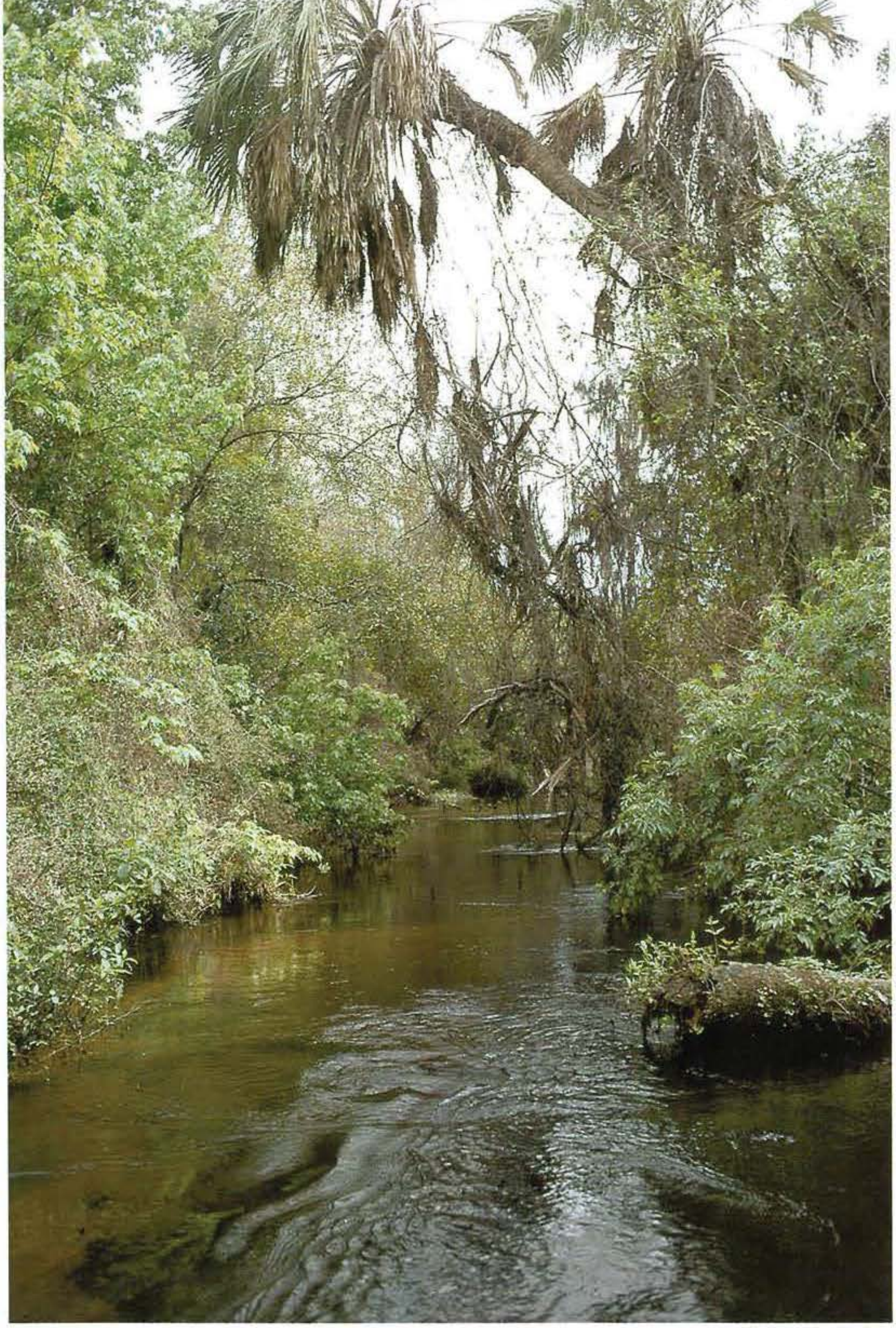
You need a lot of shiners because it takes an active one to work under the vegetative mat. Inactive or dead shiners are no good. Also, bass are not the only predator fish that work under the mats. Large chain pickerel work the edges, and mudfish (bowfin) cruise far back in the cover. In fact, the first four fish that Bunty caught were sizable chain pickerel. On another trip, she would have been proud of them but we were after trophy bass.

The mudfish, some of them weighing 10 to 15 pounds, steadily cut into our shiner supply. They are vicious fighters and they often burst through the mat, much like a lunging bass, coming down with a loud splash. For a moment, you think they are trophy bass.

The two Johns caught several bass weighing from five to nine pounds during our trip. Bunty's largest weighed nine pounds even, although she wouldn't count it because McClanahan set the hook for her. She also boated a seven pounder and several smaller ones.

I didn't catch any over seven pounds. Of the fishermen we talked with on the water and at the ramp, only those using shiners had been successful. For this particular trip, live bait had paid off when artificials would not have. The vegetation mats were too thick for weedless plastic worms and I don't know how you train a plug to swim under them.

Fishing with artificials is fun, but if you're after large bass your best bet year-round is shiners. There's nothing like them! ●



Tiger Creek, near Lake Wales, is crystal clear and undisturbed. The Nature Conservancy is now raising funds to buy land surrounding the upper six miles of the creek and its headwaters.

Photo by Ken Morrison

The Name Of The Game Is. . . .

KEEPING IT WILD

By Nat Reed

Many of this country's animals and plants, once numerous, are now extinct or on their way to annihilation. This is particularly true in Florida, which—because of its tropical and semi-tropical climate—supports a myriad of lifeforms and draws more and more people to its already densely populated shorelines. The confrontation between man and the state's animal and plant life has resulted in the destruction of vital wildlife habitats and the rapid dwindling of Florida's flora and fauna.

Formerly distributed throughout the eastern U.S., the Florida panther is now sighted only occasionally. The Florida manatee, or sea cow, existed in coastal waters and lagoons from North Carolina to Texas; now only small numbers are found in the state's coastal areas. Florida's indigo snake has been so widely captured by collectors that few remain in the wild. Due to no sightings since 1952, the Caribbean monk seal—which used to thrive in the Florida Keys—is believed to be extinct. A rare Florida reptile, the American crocodile, has a total population of under 300. Green turtles are at minimum survival level, and the red wolf has been extirpated from the state entirely.

Because of the scarcity of suitable habitat, particularly freshwater and saltwater marshes, a wide variety of waterfowl and native birds are threatened with extinction: the Florida great white heron, American bald eagle, the everglade kite, Florida sandhill crane, Bachman's warbler, two species of woodpecker, the dusky seaside sparrow and Cape Sable sparrow. Pesticides and industrial plant discharges have brought about a drastic reduction of Florida's eastern brown pelican and osprey. The chemicals cause the birds' eggshells to become thin and collapse, thus lowering the birthrate.

The state's flora have fared no better. Rare and endangered plants include: Lignumvitae trees, torchwood, black ironwood, princewood, Florida tetrazygia, sweet pinesap, Florida royal palm, two species of prickly apple, wild indigo, St. John's wort, wild columbine, scrub plum, Florida yew, two species of lily, sea-lavender, a rare rhododendron, several orchids, many native ferns, and a wide variety of grasses.

These plants and animals are only some of the victims of the conflict between society's generally thoughtless development and the irreplaceable values of the natural land. However, the damage done by man, while severe, is not totally irreparable—*if* we act quickly to set aside Florida's best natural areas where endangered and vunerable species can once again flourish and multiply.

There is a group of people doing just that in Florida. Since 1951 The Nature Conservancy and its members have been working to safeguard some

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Photo by Wallace Hughes

Despite complete protection, the endangered Florida panther's numbers continue to decline, primarily due to loss of habitat. Through its land acquisition program, the Conservancy attempts to insure habitat for the Florida panther and other wildlife.

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of our country's finest natural lands and the variety of life they shelter. The Conservancy is a private, non-profit land preservation organization which exists solely to preserve and protect environmentally significant natural areas—especially those that support unique ecosystems and endangered plants and animals—because natural lands hold and safeguard the resources that can determine man's future survival on this planet.

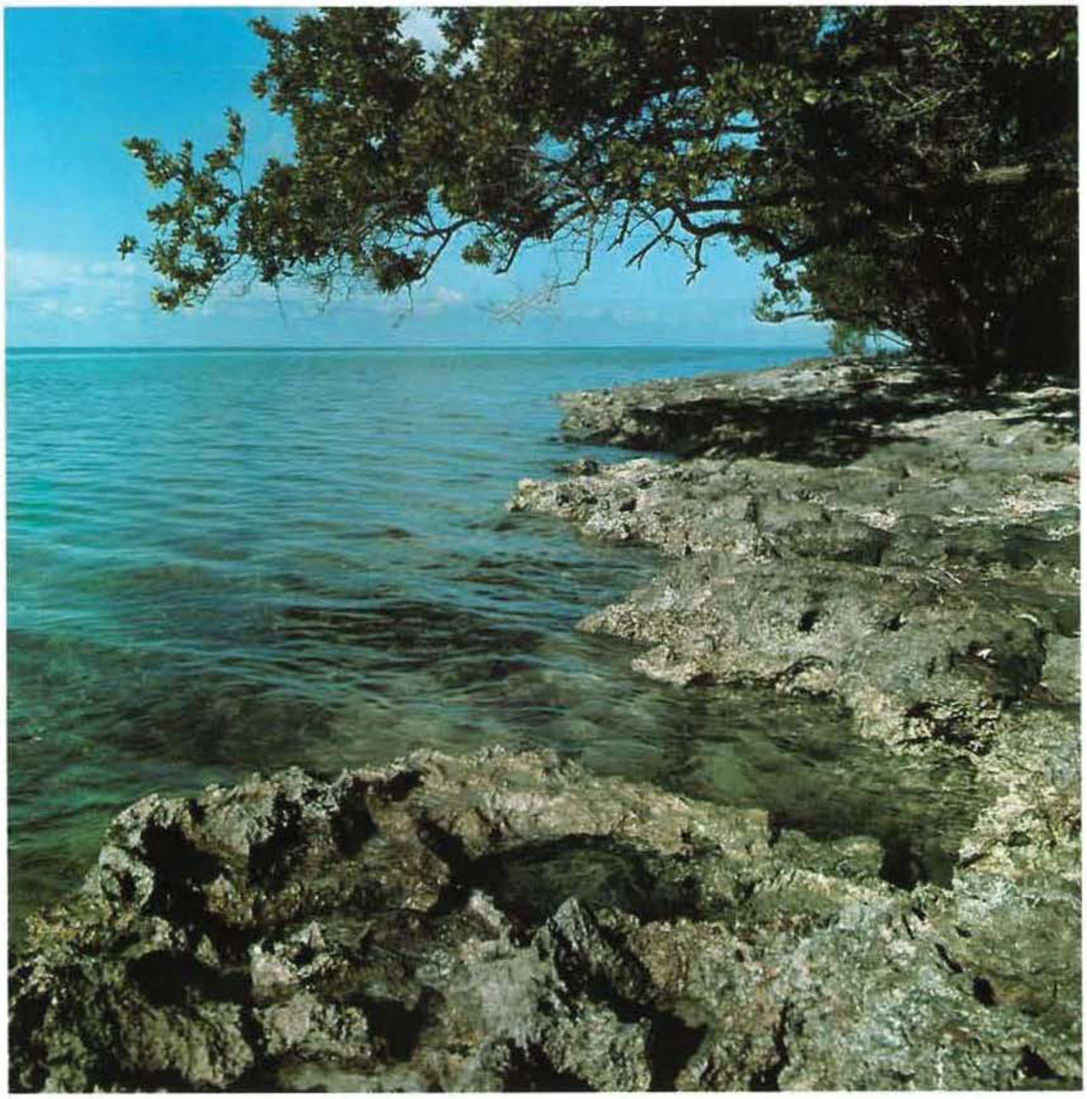
To achieve its land preservation goals, The Nature Conservancy first identifies areas that need to be protected and then goes about acquiring the land, either through purchases or gifts. Responsible land stewardship is arranged through Conservancy volunteers, other conservation organizations, universities, or government agencies. In the past seven years, the Conservancy and its Florida Chapter have set aside some 68,500 acres in the state to create over 35 preserves and wildlife refuges.

Tiger Creek, near Lake Wales, is one of the Conservancy's most recent preservation projects in Florida. The area shelters bobcat, osprey, wild turkey, wood duck, scrub jay, deer, and fox, and possibly the endangered Florida panther. The crystal-clear stream meanders through swamps and sandhills, pine and oak. In some places it is wide and serene; in others it is narrow and turbulent. Alligators glide through the shadow-patterned waters and otters frolic among the water lettuce and lilies. The area is so untouched that only canoes can manuever, with many impediments, through the thick jungle.

After acquiring two tracts of land near the creek, totaling 880 acres, the Conservancy obtained an option to purchase 1,720 acres from Alico, Inc., of La Belle, Florida. By acquiring the additional acreage, a broad belt of land along both sides of Tiger Creek will be saved. The pristine area starts at the headwaters of the creek and runs southward along more than six miles of the stream's winding course, which flows through forests of oak, maple, bay, tupelo, and pine.

As of late last fall, half the funds needed to purchase and protect Tiger Creek ($540,000) had been raised by the Conservancy's Tiger Creek Project Committee, largely through donations from

Photo by Susan Bournique



A rarity in the upper Florida keys, right; a completely undeveloped island. The Conservancy beat the bulldozer to this key, preserving the island in its natural state, including a stand of lignumvitae trees.

concerned Florida residents. Although the Committee is still fund-raising, a nationwide campaign has been undertaken to help raise the remaining funds. The American Land Trust, a national committee of business, conservation, and civic leaders, has launched the program to assist in preserving the undeveloped area, which will be managed and protected by the Conservancy. The objective of the Trust is to select and acquire for preservation at least one area of prime environmental importance in each of the 50 states. The program's goal is $200 million in donations of land or funds.

The forested remote borders of Crescent Lake, which lies in Flagler, Volusia, and Putnam Counties, are a perfect habitat for the endangered bald eagle. The great birds share the lake's abundant fish with giant turtles and alligators. Pileated woodpeckers and yellow butterflies flash in and out of the draperies of Spanish moss. The towering trees of red maple, black gum, and cypress are dotted with wild orchids, while large cabbage palmettos grow beneath the trees. Crescent is considered one of the least polluted large lakes in Florida.

On the southeast corner of the lake is a 2,850-acre tract that was recently donated by the Union Camp Corporation to the Conservancy under the auspices of the American Land Trust program. Bordering Crescent Lake for two and a half miles, the totally undeveloped area consists mainly of a swamp hardwood forest (black gum, maple, cypress) and a large freshwater sawgrass marsh. The land has been deeded to The Nature Conservancy, which transferred the property to the Florida Department of Natural Resources for management as a park/refuge.

Photo by Dave Norris

The indigo snake, so widely captured by collectors that few remain in the wild. Although protected, indiscriminate methods of rattlesnake hunters continue to take a toll of this endangered reptile. Conservancy lands not only provide habitat, but also offer sanctuary to the indigo and other endangered animals.

Another recent donation of Florida land via the Trust's program is located not far from the coast's heavily traveled U.S. Highway 1. A gift of the Hobe Sound Company, the 500-acre natural area on Jupiter Island shelters the endangered Florida manatee and the largest colony of nesting sea turtles in the U.S. The property contains beach, marsh, mangrove forest, and upland, and also supports bobcat and otter and a diverse range of vegetation. The Conservancy has transferred the land to the U.S. Fish and Wildlife Service for inclusion in the existing Hobe Sound National Wildlife Refuge.

The Matanzas Pass, the only natural land left in the Fort Myers area, is a recent project of the Conservancy's Florida Chapter. Located on Estero Island in the Gulf of Mexico, the 42-acre property contains primarily tidal mangrove swamp, grass ponds, and saltmarsh—ideal habitat for snowy egret, American osprey, brown pelican, gopher tortoise, and indigo snake. Besides red, black, and white mangrove the area supports live oak, myrsine, cabbage palm, saw palmetto, white stopper eugenia, and even a few gumbo-limbo—all plant species that are nearly estinct on Estero and other barrier islands. The Matanzas Pass Project Committee of the Florida Chapter is fund-raising $117,000 to purchase the land.

The Honorable Theodore Roosevelt Preserve near Jacksonville is one of the Conservancy's and the state's most publicized acquisitions. A 360-acre bequest of Willie Browne, the area contains a hardwood forest and magnolia-hickory forest, a rich understory of shrubs, two large swamps with ponds, and a heron rookery. After spending almost all his 80 years of the property, safeguarding it from poachers and developers, Mr. Browne gave his precious land to the Conservancy in 1970 so that the organization could continue his vigil. The wild marshland on the St. Johns River was all that Willie Browne owned in the world.

Brooksville Preserve, 290 acres in Hernando County, was donated by Janet Butterfield Brooks. The area consists of a mixture of high hammock, longleaf pine, and turkey oak uplands. There are also two small freshwater ponds and a spring that is the source of a small stream. Animals typical of the preserve include gray fox, fox squirrel, cat squirrel, bobcat, raccoon, opossum, and armadillo.

Besides accepting gifts of land in Florida, The

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Photo by Mary Paul Loomis

Unspoiled marsh, St. Vincent's Island National Wildlife Refuge, Franklin County. In a cooperative effort, The Conservancy originally acquired the island and was later reimbursed by the Department of the Interior.

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Nature Conservancy has also assisted the state in acquiring many acres for preservation. Gulf Hammock, 26,285 acres in Levy County, is one of Florida's largest and most important untouched saltmarsh estuary systems. The Conservancy coordinated a 7,000-acre gift from the Georgia-Pacific Corporation to the state and assisted the state in purchasing the additional 19,285 acres. Lignumvitae and Shell Keys on the east coast are two Florida keys—one totally undeveloped and containing the largest known stand of rare lignumvitae trees—which were purchased with Conservancy assistance. Another area purchased with Conservancy help, an addition to Manatee Springs State Park, supports American alligator, bald eagle, osprey, and manatee.

Many other Florida preserves were created through cooperative projects between other conservation organizations and the Conservancy, or by transferring areas to an appropriate agency for management. St. Vincent Island in Franklin County consists of 12,358 acres of unspoiled marsh, shore, woodland, six major lakes, and 14 miles of beach. It was transferred to the U.S. Fish and Wildlife Service. Snipe Key was purchased in coordination with Fish and Wildlife and is now part of the Great White Heron Refuge in Monroe County. U.S. Fish and Wildlife also manages 73 acres of Conservancy-purchased land which provides habitat for the dusky seaside sparrow and is part of St. Johns National Wildlife Refuge. The Nature Conservancy is still assisting the National Park Service in acquiring additional land for the Big Cypress National Freshwater Reserve, which presently contains 142,800 acres. The area is reported to harbor 21 endangered or threatened animal species and is a major watershed that supplies the vast Everglades National Park with a constant flow of vital water.

Other preserves created by The Nature Conservancy, such as Blowing Rocks, Corkscrew Swamp, Fuch's Hammock, Rookery Bay, Ten Thousand Islands, and part of Sanibel Island are managed and protected by either the Conservancy's Florida Chapter, the National Audubon Society, or by local conservation groups like the Collier County Conservancy or the Sanibel Captiva Conservation Foundation.

The Nature Conservancy has been very active in Florida. But the truth is that much more needs to be done. There are many more lands presently unprotected. There is an increasing variety of plants and animals that can be saved from extinction only by preserving their habitats.

The fate of these vanishing species and the protection of their habitats rests in the hands of Florida's citizens. Neither the State of Florida nor private organizations like The Nature Conservancy or programs like the American Land Trust can do the job alone. The conservation groups need the help of people willing to donate land and funds, to work as volunteers in protecting the land, to involve themselves in efforts to curb thoughtless and destructive development of our last wildernesses. And state activities need the support of a concerned electorate. Without question, both public and private conservation agencies need *your* help to halt the demise of the state's threatened and vital wildlife. Florida is their home, too. ●

ANNUAL REPORT

JULY 1, 1975 – JUNE 30, 1976

Florida Game and Fresh Water Fish Commission

WISE USE of our natural resources through wise ADMINISTRATION

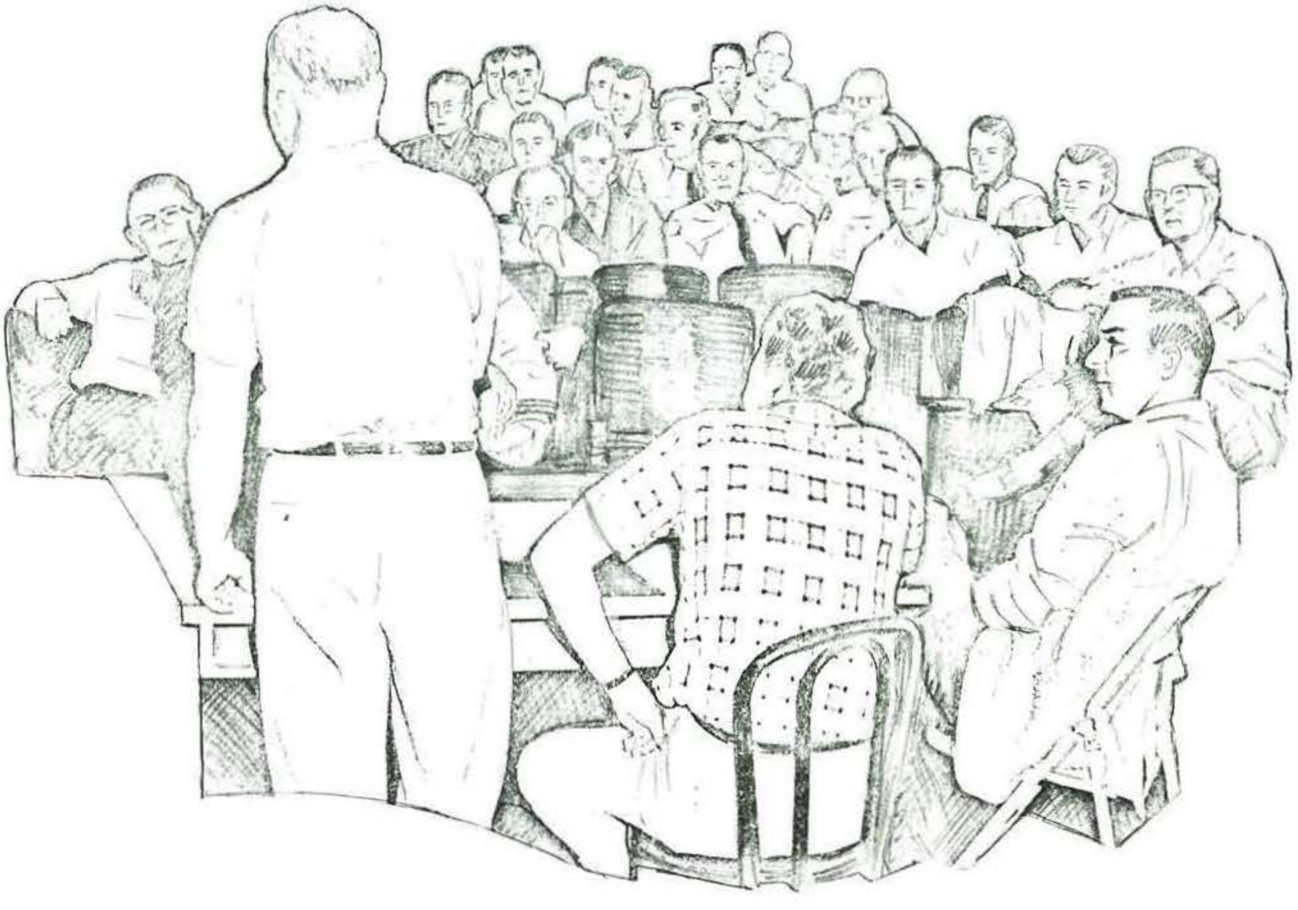
For the first thirty years after the Florida Game and Fresh Water Fish Commission became a constitutional agency, on January 1, 1943, it carried out its programs with revenue derived from the sale of hunting and fishing licenses. During the early years of the Commission, this was appropriate, as the programs of the agency were primarily directed to benefit hunters and fishermen. However, over the years, particularly during the past decade, the Commission has become increasingly involved in matters affecting and benefiting not only the hunter and fisherman but the general citizenry: protection, research and management of nongame species of wildlife; boating safety, civil emergencies and other general police actions; pollution control, and ecological systems; and development of a recreational program for the Everglades.

Realizing that these activities benefited the general public rather than exclusively hunters and fishermen, in 1973, for the first time, the Legislature appropriated $2,036,737 in general revenue funds to assist in the Commission's overall program. Subsequently, the 1974 Legislature appropriated $5,196,711 in general revenue funds to carry out the expanded responsibilities of the Commission. (Of this amount $1,735,164 was for capital outlay projects, primarily for development of recreational facilities in the Everglades.) Finally, the 1975 Legislature appropriated $3,534,200 for the same purpose. These funds have been put to good use, as can be ascertained by a review of the various programs and accomplishments set forth in this report.

> **"A TRUE CONSERVATIONIST IS A MAN WHO KNOWS THAT THE WORLD IS NOT GIVEN BY HIS FATHERS BUT BORROWED FROM HIS CHILDREN."**
>
> **Audubon Magazine**

In general, The Commission accelerated its management of the state's wildlife and fresh water fisheries resources to insure optimum wildlife and fish populations for the recreational and aesthetic benefit of the public. Such management encompassed the promulgation of codes and regulations for the protection of the resource; enforcement of these codes and regulations and those provided by Florida statutes; habitat improvement; research directed toward solving resource problems; regulation and inspection of wildlife importation; regulation and inspection of wildlife exhibitors; control of aquatic vegetation; biological inspection and reporting of construction and development projects which could affect fish and wildlife resources and their habitat; acquisition and development of public recreation areas; and a conservation information and education program.

The Commission appreciates the support of the Legislature, the sportsmen, and other outdoor-oriented citizens of the state, and intends to justify that support.



ACCOUNTING for the wildlife dollar through ADMINISTRATIVE SERVICES

> "WE LIVE IN DEEDS, NOT YEARS; IN THOUGHTS, NOT BREATHS; IN FEELINGS, NOT IN FIGURES."
>
> Philip James Bailey

The Administrative Services Division, literally, has a hand in everything the Commission does. Starting with the formulation of the annual budget to collecting revenue and paying for supplies and personnel, continuing with accounting for all physical property, maintenance of facilities, to providing 24-hour communication throughout the state, this Division is involved. Activities of this Division include fiscal and accounting, property maintenance and inventory, publications and printing, purchasing of equipment, personnel management, communications, budget programming and planning, and general support services.

Program: PROPERTY MAINTENANCE AND INVENTORY

Everything the Commission owns, rents, leases or sells must be accounted for. Accountability is the key to successful property management and is the main task of the property office which maintains all property transactions.

Progress:

A complete purge of all files and installation of a new filing system has been accomplished. The land, buildings and communication property records were reviewed and updated. A statewide semi-annual property inventory was instituted with every employee having the property assigned to him inspected by his supervisor. Surplus and confiscated property was disposed of according to procedures and resulted in the sale of 175 firearms for $10,000. In addition, 110 vehicles, 31 boats and 16 trailers were processed and disposed of.

Program: PURCHASE OF EQUIPMENT AND SUPPLIES

Getting the best value for the wildlife dollar is but one of the goals of this activity. Maintaining a tight control on expenditures along with seeing that all financial obligations are paid promptly and completely are vital to a progressive operation.

Progress:

A complete reorganization in the processing and filing of purchase orders was initiated. The filing system was subsequently reduced from three to two systems yet provided a working file and a required audit review file. A total of 2,479 purchase orders and 128 legal and formal bids were processed. With the improved purchasing procedures, the Commission has been able to maintain much closer control and equipment and supply purchase.

Program: FISCAL AND ACCOUNTING

Accountability for revenue receipts and expenditures is a major task of any organization. The Fiscal and Accounting operation is responsible for all financial transactions, licensing and administration of both State and Federal funds.

Progress:

A new Departmental Accounting System has been implemented to provide complete and detailed records of how each dollar of the Commission's funds was utilized. Included is a cross check system which allows both the operating divisions and the auditors to balance operations with the Comptroller's records on a monthly basis. Tighter controls of revenue and expenditures provide better management of resources and has allowed the Commission to keep current the funding of the Land Acquisition Trust Fund and set aside several hundred thousand dollars as operational reserve. Both the operational reserve and the trust fund are invested and the Commission was able to generate $64,000 profit from such investments during the past year.

Program: PRINTING AND PUBLICATIONS

The responsibility of the printing and publication operation includes publishing the only state agency magazine, FLORIDA

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WILDLIFE, as well as the production of duplication of reports and printed educational materials.

Progress:

In-house duplication has become a reality with the acquisition of a typeset composer, platemaker and offset duplicator, allowing for considerable savings to this agency. The printing and publication operation is now fully equipped to provide quick, quality duplication for the various divisions within this Commission. The agency magazine, FLORIDA WILDLIFE, received a new look featuring a restyled front page plus all-new typography. The highlight of this magazine was a special 52-page Bicentennial environmental issue with the first full-color illustrations in 29 years of publishing a monthly magazine. The magazine will be converted from monthly to bi-monthly with full color and additional pages. Magazine subscription revenue totaled a record $72,700, a 37% increase over the previous year's income.

Program: PERSONNEL

Quality employees result in high quality operations and a high quality agency. The personnel operation has the monumental task of seeking the best qualified employees for the Game and Fresh Water Fish Commission as well as maintaining all records for both permanent personnel and seasonal employees.

Progress:

In addition to maintaining records for the 633 established positions and seasonal and part-time employees, the Personnel Office responded to an estimated 4,000 inquiries regarding Commission employment opportunities. During the year, selective screening procedures were conducted for the purpose of identifying the best qualified applicants from registers of the Division of Personnel.

Program: COMMUNICATIONS

The key to the success of any people oriented group is effective communication and more so with the Commission and its law enforcement responsibilities. Maintaining an effective communication system between operations and personnel, and between the Commission and the public is the major objective of this activity.

Progress:

The Communication operation was merged into the Administrative Division allowing for improved practice in the areas of budget, system improvement and work priority planning. A significant improvement was made in the radio system and many areas which had virtually no radio communication are now reliably encompassed in the system. The 24-hour radio coverage and the installation of toll-free telephones at the five regional offices has provided round-the-clock communication between the Commission and the public.

Program: SUPPORT SERVICES

The foundation of the Commission's operation is through licensing and permitting. Over the years, the volume has increased as has the number of people utilizing Florida's resources. This operation serves as a valuable link between the Commission and the Tax Collectors and their agents who issue licenses and permits.

Progress:

One major accomplishment of the Support Service operation was eight regional workshops to afford Tax Collectors and their personnel to participate in discussions involving license allocations, reporting procedures, year-end balancing requirements, hunt quota permit applications and other areas of mutual concern. All counties are now reporting license sales by the 10th of each month as compared to less than 45 per cent in the past. The Support Service continues to provide the liaison between the Commission and the retail outlets for licenses and permits.

GETTING

At both statewide and grassroots level, this function is dedicated to creating a better understanding, appreciation and acceptance of concepts for wildlife and natural resource conservation. As Florida grows, so do the problems faced by wildlife resources and conservation agencies. Utilizing every available means of communication from personal appearances, informational brochures, radio, television, newspapers, magazines and exhibits, the I & E Division strives to have the wildlife conservation theme echo across the state.

Activities include general operations, news and information services, audio-visual operations, conservation education, hunter and firearm safety training, regional operations, and the wildlife reserve program. The only measure of program success is in the acceptance or rejection of conservation programs by sportsmen and citizens alike. The programs are developed and administered at headquarters level and implemented at local levels by regional personnel.

Program: NEWS AND INFORMATION

A well informed sportsman and citizen is an individual that is not only knowledgeable of existing rules and regulations but understands the total concept of conservation and wise use of renewable natural resources. The basic task of the news and information service is to make available such information relating to wildlife and fresh water aquatic life that will help create an aura of conservation concern.

Progress:

As in the years past, the news and information release remains the most effective means for distribution of information. News and information releases are mailed on a regular basis at both statewide and regional levels. A new internal house organ was created and is distributed to Commission personnel and organized conservation groups on a regular basis. Production and distribution of information brochures continues as an ongoing activity as well as regular correspondence in response to inquiries.

Program: AUDIO–VISUAL

Audio-visual, as the name implies, is the sight and sound of wildlife and is utilized to create an additional dimension to programs of conservation. The audio-visual operation maintains a current file of photographs, both black and white and color, and is responsible for the creation of visuals including graphics, layout and design.

Progress:

Major emphasis has been placed on the creation of color slide lecture series with taped narration for distribution and group presentation. It has been found that such slide shows can serve as an effective means for communication at far less expense than movies and can always be updated by the addition of one or more slides.

Program: CONSERVATION EDUCATION

The major conservation education thrust has been directed to the future citizens of Florida with major emphasis placed at school levels and summer conservation camping experiences.

HOOKED

on fishing–hunting–conservation–through INFORMATION and EDUCATION

"PUBLIC SENTIMENT IS EVERYTHING. WITH PUBLIC SENTIMENT NOTHING CAN FAIL. WITHOUT IT, NOTHING CAN SUCCEED."

Abraham Lincoln

Progress:

This year witnessed 23 consecutive summers of Youth Conservation Camps. Thousands of boys and girls have received a basic introduction to the outdoors, and many conservation leaders acknowledge the foundation of their conservation concern was established at a Youth Conservation Camp. Two youth camps are operated by the Commission. To further conservation education for young people, the division was heavily involved with production of a series of 36 conservation education classroom television programs in cooperation with WEDU of Tampa.

Program: HUNTER AND FIREARM SAFETY TRAINING

This program has a two-fold objective: (1) To teach safety in the handling of all firearms, both in the hunting field and in the home; and (2) To combat the slob-type hunter, with the ultimate goal of eliminating this image from the Florida sporting scene. The training program is coordinated by a small cadre of Commission employees. Actual classroom and field training is provided by certified instructors who volunteer their time, knowledge and teaching skills.

Progress:

A slight but noticeable decline in hunting accidents during this year is evidence that the program is paying dividends. Since initiation, more than 24,000 citizens have been trained and certified as safe hunters. This year, 653 volunteer instructors conducted 281 training classes for a total of 10,859 instructional hours teaching the fundamentals of firearm safety and sportsmanship to over five thousand students.

Program: WILDLIFE RESERVE

The Wildlife Reserve program involves uniformed citizens interested in wildlife conservation and has extended the conservation arm of the Commission by freeing regular personnel for more demanding duties. Reservists provide their own uniforms, transportation and, most important, time for wildlife conservation.

Progress:

This year, 67 Reservists contributed almost 23,500 hours of volunteer conservation effort with a net value in excess of $105,000. Reservists, at their own expense, may attend Police Standards Training and become certified as auxiliary or part-time officers and empowered to enforce wildlife laws when under the supervision of a wildlife officer. A survey of Reserve activity indicates 41% of effort directed to assisting wildlife law enforcement, 32% to aiding fish and wildlife management, 10% in wildlife training, 8.6% in conservation education effort, and 8.4% involved with miscellaneous activities. This valuable program continues to be limited to the counties of central Florida.

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PROTECTION

of a rich heritage through LAW ENFORCEMENT

> "THERE ARE SOME WHO CAN LIVE WITHOUT WILD THINGS, AND SOME WHO CANNOT."
>
> Aldo Leopold

The Law Enforcement Division is responsible for protecting wildlife and fresh water aquatic life by preventing violations as well as the apprehension and arrest of violators of hunting and fishing laws and environmental and pollution regulations. Additional duties require enforcement of regulations relating to the importation, sale, use and possession of wild animals and fresh water aquatic life; enforcement of boating safety laws; assistance to other law enforcement agencies; maintenance of public order during natural disasters and civil emergencies; undercover investigations; and training of personnel.

Program: UNIFORMED WILDLIFE LAW ENFORCEMENT

This arm of the Law Enforcement Division is comprised of 233 employees who are charged with the responsibility to patrol 37,478,400 acres of land and water 24 hours a day. Wildlife Officers have full police authority and, in addition to regular wildlife patrol, may become involved in other crime prevention.

Progress:

This small but select force effected approximately 9,000 arrests with a 92% conviction rate. The majority of these arrests related to the protection of wildlife and the environment. However, arrests involving narcotics, larceny, littering, boating safety, traffic, auto theft, cattle theft and arson are included in the total.

Wilderness patrol requires the use of special equipment including airboats, outboard boats and motors, full-track and half-track swamp vehicles, three-wheel ATV motorcycles as well as conventional four-wheel drive vehicles and patrol sedans.

Program: AVIATION SURVEILLANCE AND PATROL

The Aviation operation utilizes two single engine fixed wing aircraft, one twin engine aircraft and one helicopter with the responsibility of providing day and night patrol in support of uniformed law enforcement officers.

Progress:

The current compliment of pilots fly a combined total of almost 15,000 hours annually. In addition to support of uniformed law enforcement, the aircraft participate in wildlife and environmental surveys as well as being utilized for search and rescue missions. The psychological effects of aerial patrol at night is a proven deterrent to night hunting activity.

Program: WILDLIFE INSPECTIONS

The Wildlife Inspectors provide a "specialized line of defense" against the illegal importation and release of potentially dangerous foreign wildlife and fish plus monitoring of the vast wildlife trade including wild animal attractions. These specialized enforcement officers are charged with insuring compliance with the myriad of technical state and Federal laws governing the commercialization and possession of wild animals and fish.

Progress:

Wildlife Inspectors work with over 1,000 major wildlife attractions and private animal keepers in a cooperative effort to continually upgrade the quality of life for captive wildlife. Special emphasis is placed on the curtailment of commercialization of endangered and threatened species, as attested by the arrest of five black-market Indigo snake dealers this year. The arrests resulted in the seizure of 40 Indigo snakes and 214 eggs destined for the pet trade in northern markets.

With over 35 million specimens of wildlife and fish imported annually through Miami and Tampa ports of entry, coupled with the additional 60 million ornamental fish produced in Florida, the potential dangers in maintaining an environmental integrity are great.

This specialized operation will continue to play a vital role in the enforcement of wildlife laws, providing a substantial degree of protection to our native fish and wildlife resources.

Program: UNDERCOVER INVESTIGATIONS

The Undercover Investigations operation was developed to aid uniformed officers in coping with organized market hunting and large scale commercialization by wildlife profiteers.

Progress:

Although small in size, this unit has "broken the back" of several groups of profit motivated wildlife violators. Undercover investigations this year disclosed a market hunting, cattle rustling and stolen farm equipment operation in central Florida where deer and rustled beef were slaughtered for sale and farm equipment stolen and sold.

Local courts and prosecutors have lauded the professional enforcement tactics of this operation that currently maintains a jury trial conviction record of 100%.

Since 1971, 38 defendants arrested as a result of undercover investigations have been convicted and received the following sentences:

Total fines	$27,126.00
Assessment to replace illegally taken deer	$ 8,675.00
Jail time (suspended)	13 years, 2 months
Jail time (served)	9 years, 2 months, 10 days
Supervised probation	42 years, 6 months

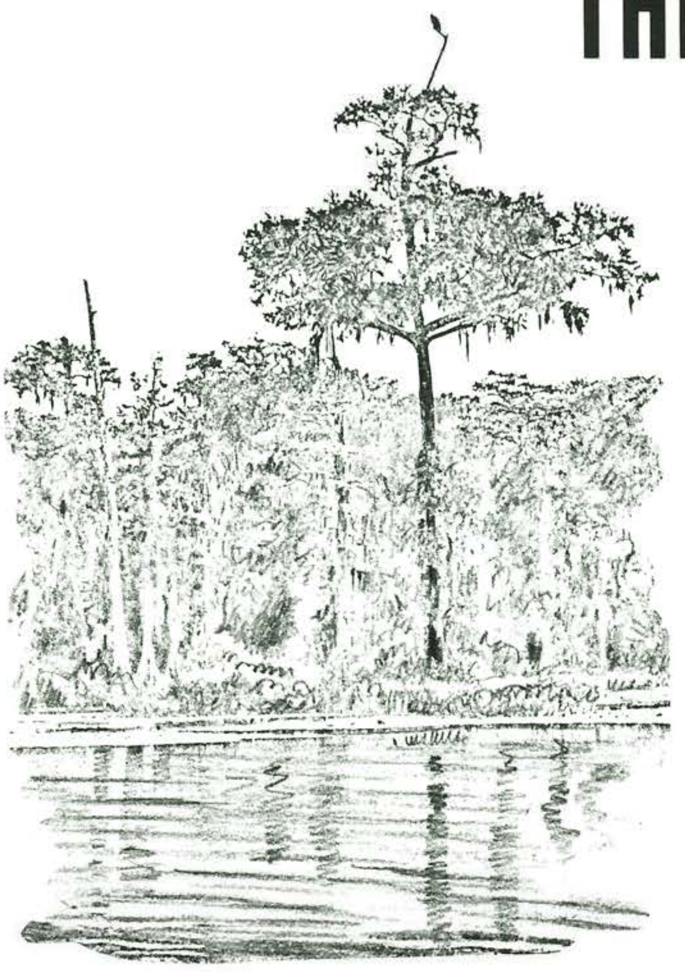
Program: WILDLIFE TRAINING

The Training operation provides the Law Enforcement Division with program evaluation, curriculum development, research, seminars, workshops, and publications. It is an integral part of an efficient and effective organization, especially in a law enforcement agency where officers must be kept abreast of a constantly changing society and its laws.

Progress:

During this fiscal year, 13,960 hours were utilized in seminars, workshops, and recruit training of 345 Commission employees. In addition, a precision driving course was devised following a comprehensive study of vehicle accidents.

THE KEY to quality wildlife is quality habitat through ENVIRONMENTAL PROTECTION



> "INDEED, IF WE DON'T SAVE OUR ENVIRONMENT NOW, NOTHING WE HAVE ACCOMPLISHED IN HUMAN ENDEAVOR CAN BE LONG SUSTAINED."
>
> Charles A. Lindbergh

Operating under the premise that there can be no wildlife without adequate habitat, the Environmental Protection Bureau works to provide all the finned, furred and feathered residents of Florida with habitat protection. This Bureau works with Federal, State and local governments as well as private industry in an attempt to limit damage to fish and wildlife resources. Proposed development projects are reviewed and recommendations made on how to alter the project to be less destructive to the fish and wildlife resources or recommend the project plans should be rejected or amended because of the ad-

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verse effects. This Bureau places the welfare of the fish and wildlife as the utmost priority.

Program: HABITAT ASSESSMENT PRIVATE DEVELOPMENT

This program is designed to reduce the impact private development activities may have on fish and wildlife habitat by habitat assessment of environmental regulation and U.S. Army Corps of Engineers permit application.

Progress:

Field biologists examined 605 applications requiring 1,330 man-days of effort. Comments pertaining to habitat evaluations were submitted to the appropriate agencies with each application. This is a major effort to introduce consideration for fish and wildlife into the permitting process for private developments.

Program: HABITAT ASSESSMENT PUBLIC WORKS PROJECTS

This is an effective program and a high priority item in operating plans. Each public works project is reviewed for possible effects on fish and wildlife resources.

Progress:

This major effort resulted in the review of 96 projects requiring 650 man-days of effort. Projects included river alteration proposals such as the Apalachicola, Oklawaha and St. Johns as well as port developments, highway projects and many others. Many projects were altered to be less destructive of fish and wildlife resources and a number have been suspended because of their adverse effects on wildlife resources.

Program: A–95 CLEARINGHOUSE

This program requires the review of projects requiring Federal review and financing and involves many diverse proposals which may impact wildlife. Energy plants, subdivision developments and public land management policies are but a few of the categories.

Progress:

A total of 237 projects were reviewed for possible impacts on fish and wildlife. Many alterations were made due to input and field surveys within this program.

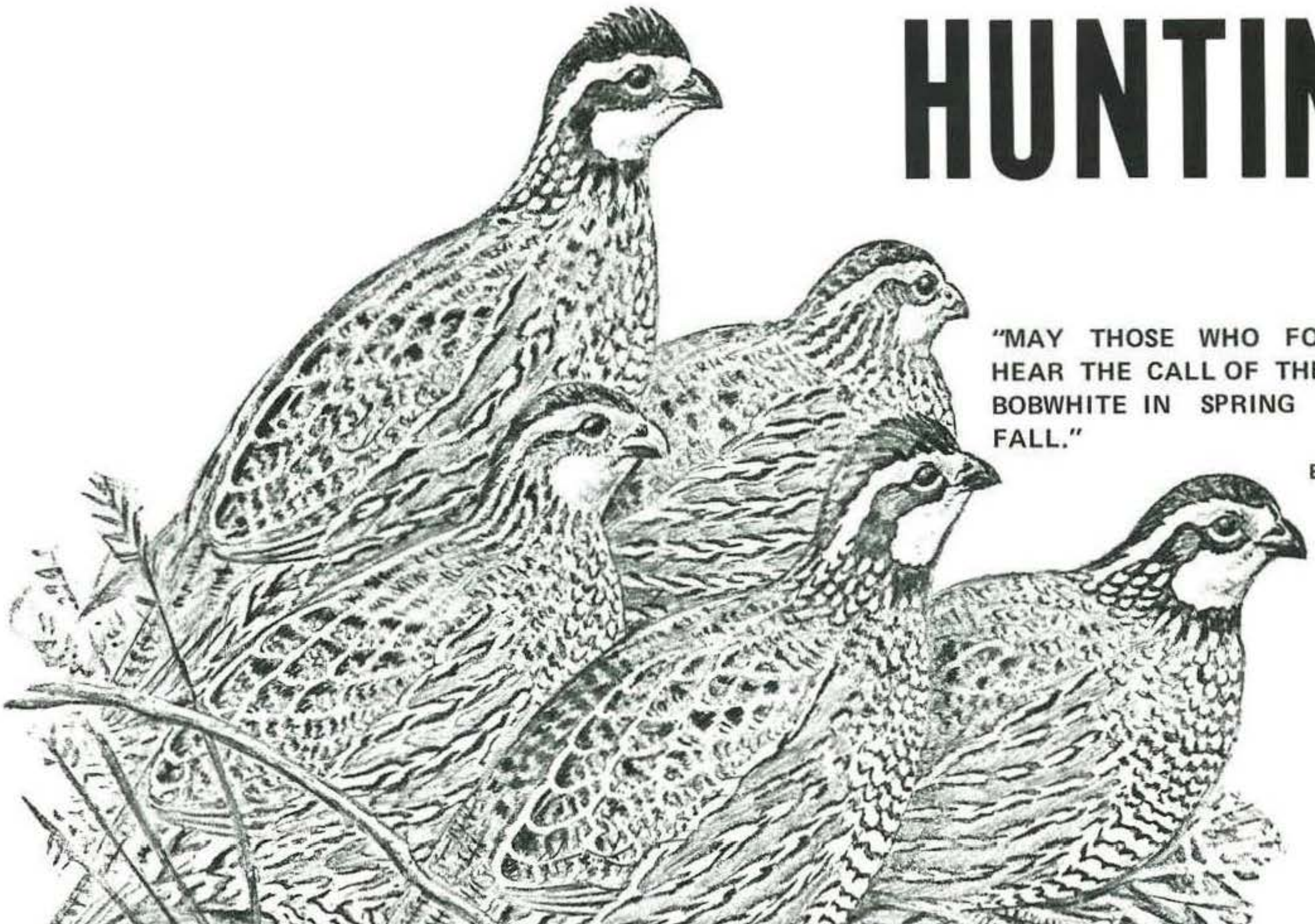
Program: HABITAT SURVEYS

This program is designed to provide a statewide survey of reliable habitat information that would reduce the need to conduct field inspections on each proposal. The survey information can be utilized to review major programs with emphasis on endangered habitats or can be relayed to regional or local planning agencies.

HUNTING –an

"MAY THOSE WHO FOLLOW HEAR THE CALL OF THE OLD BOBWHITE IN SPRING AND FALL."

Edgar Guest



Progress:

Major progress on this program has not been made due to priorities in other areas and staff limitations.

Program: FISH AND WILDLIFE TECHNICAL ASSISTANCE AND ENVIRONMENTALLY ENDANGERED LANDS

The Environmental Protection Bureau represents the Commission on the Interagency Planning Committee which screens all proposals and assigns general priorities on the value of the proposal for fish and wildlife.

Progress:

Much of the 200 million dollars for purchase of environmentally endangered lands has been obligated. Only about 50 proposals were considered and the review of most of these were cursory. Additional time was spent in determining management goals and resolving problems with lands previously purchased or being purchased.

Program: FISH AND WILDLIFE ASSISTANCE AND STATE WILDLIFE LAND PLANNING

This area of concern is of increasing importance because of the value of major land use decisions to fish and wildlife. The Bureau supplies fish and wildlife input and serves as watchdog to prevent land use plans or decisions which will have adverse effects on existing populations.

Progress:

Major activities include the "Eutrophication of Lake Okeechobee" study, the Kissimmee Restoration Council legislated this year, the Coastal Zone Management Plan, one major DRI appeal, and initial coordination on the Florida Land Use Plan now being reviewed.

Program: FISH AND WILDLIFE TECHNICAL ASSISTANCE TO LOCAL DEVELOPMENT

This program is designed to incorporate fish and wildlife criteria at the local level of planning or development. Regional planning councils, water management districts, county commissions, zoning boards, consultants and developers can often include a much higher level of fish and wildlife in their development when properly advised before their plans become final.

Progress:

Bureau biologists attended a number of County Commission meetings, commented or worked with several Developments of Regional Impact, particularly in the phosphate counties of west central Florida, participated in ad-hoc committee meetings on the Choctawhatchee River and coordinated extensively with the Central and Southern Florida Flood Control District.

nual sustained yield of wildlife through WILDLIFE MANAGEMENT

This Division is responsible for the management of wildlife habitat, wildlife research, wildlife surveys and inventories and is responsible for providing public hunting for the citizens of the State. The Division administers and directs the activities of research and management as well as the acquisition, development, operation and maintenance of wildlife-related recreational areas and facilities. Additional activities include research on endangered species and other non-game species and support of those wildlife species which are of interest to the non-hunter.

Program: PUBLIC HUNTING

To provide public hunting, the Division instituted a land lease program to provide protection and habitat improvement for landowners in exchange for public hunting rights. To supplement the program, the legislature appropriated funds to be distributed to landowners on a pro rata basis according to the number of hunters utilizing the designated areas.

Progress:

During 1975-76, a total of 86,000 hunters spent 1,800,000 man-days hunting on 4,800,000 acres included in the 43 wildlife management areas. A total of $200,000 was distributed to private landowners participating in the program. Of the lands included in the program, more than one-third is in private ownership with the balance being State and Federal lands.

Program: WILDLIFE MANAGEMENT AREA MAINTENANCE AND DEVELOPMENT

The Division currently has responsibility for nearly five million acres of land in 43 wildlife management areas, providing technical assistance to landowners and conducting management studies to improve wildlife management techniques.

Progress:

To carry out these responsibilities, a total of 11 biologists, five supervisors and 24 wildlife management specialists provided the expertise and manpower with the majority of time and effort directed to the maintenance, development and operation of wildlife management areas.

Negotiations were completed and public hunting began on the Joe Budd Wildlife Management Area (5,500 acres) in Gadsden County, the Cypress Creek Wildlife Management Area (25,972 acres) in Hamilton County and the Rotenberger-Holeyland Wildlife Management Area (62,720 acres) in Palm Beach County.

Habitat management work was limited but personnel did control burn 158,800 acres, plant 31,100 oak seedlings, 300,000 bicolor lespedeza seedlings, and 712 acres of annual food plots. In addition, a total of 1,564 acres were planted for dove fields to provide public hunting.

Other functions included maintenance of campsites on 17 acres, maintenance and improvement of 83 miles of access roads, operation of checking stations and the erection and repair of boundary and entrance signs. Three waterfowl impoundments located on the Aucilla, Guana River, and Avon Park Wildlife Management Areas were maintained and managed. Quail feeders were operated on the Webb Wildlife Management Area to improve the quail population.

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In the technical guidance program, biologists responded to over 300 requests from landowners for assistance in developing wildlife management plans, wildlife food plantings, plans for census and harvest of wildlife and control of nuisance wildlife.

Among the management investigations conducted was an abomasal parasite sampling project in which stomach samples were collected from 134 hunter harvested deer on 19 wildlife management areas and a scientific count of parasites made. Samples were grouped with average parasite counts calculated for each area. In addition, the relationship of the deer herd to the carrying capacity of its habitat was established for each area. The study has developed a correlation between the average parasite count for an area and the deer population status for that area.

The Division initiated an investigation of the benefits of rotational cattle grazing systems on range for wildlife. According to research in other regions of the country, improvement in habitat has been accomplished by rotating cattle from pasture to pasture, allowing one or more pastures to rest at all times. This range management concept has, in addition to increasing wildlife values, resulted in increased productivity for cattle on a per-acre basis. Biologists have made plans to introduce the rotational grazing system on the Green Swamp and Cecil M. Webb Wildlife Management Areas and on several private ranches and hope to enhance habitat for wildlife.

Program: WILD TURKEY RESEARCH

During the 1950's, Florida's 100,000 turkeys was the second largest wild turkey population in the United States and provided an annual legal harvest of 40,000 birds. Without warning, the annual harvest fell to less than half in the mid-1960's, cause unknown. Florida was also experiencing a rapid destruction of turkey habitat and management programs of the past were no longer effective. Intensified research was initiated.

Progress:

The turkey population crash was caused by a lethal infectious disease, probably one that was found in the population two years after research began. Surveys show that the population recovered from the disease by 1972 but has continued to be undercut by habitat losses. More conservative regulations on hunting have helped avoid the need to curtail turkey hunting and experimental hunting regulations designed for minimum adverse impact are under study.

Program: HUNTER SURVEY

The hunter survey is a statistically developed mail-out survey to provide facts and figures as to the number of hunters and their success on public hunting areas.

Progress:

For each wildlife management area, the number of hunters, man-days of hunting pressure, and harvest for 10 different species is determined. During 1975-76, the 86,000 sportsmen hunting on wildlife management areas harvested 34,000 deer, 17,200 hogs, 2,000 hogs, 2,000 turkeys and 538,000 squirrels.

Program: LAND AQUISITION

Three dollars of each ten dollar wildlife management area stamp is set aside for purchase of lands for public hunting, fishing and other outdoor recreational uses.

Progress:

At the present time, a total of $920,000 is available for land purchases. During 1975-76, a total of 478 acres of land located in the Cecil M. Webb, Joe Budd and Three Lakes Wildlife Management Areas was obtained. State wildlife management area lands owned wholly by the Commission total 62,500 acres on the Cecil M. Webb, 56,000 acres on the J. W. Corbett, 800 acres on the Joe Budd and 40 acres on the Three Lakes. The Commission will continue to acquire lands for public hunting.

Program: ALLIGATOR MANAGEMENT

The alligator, once endangered, has made a remarkable recovery since it was placed under full protection. While there is no positive method of determining alligator populations, state biologists have estimated that 500,000 alligators may inhabit the state today. The steady increase in human populations coupled with expanded developments have encroached into the alligator's habitat resulting in an increase in conflicts between gators and people.

Progress:

In 1976, the Commission received between 8,000 and 10,000 gator complaints. The program of capturing and transplanting alligators has become ineffective as all suitable areas are now approaching full capacity and the number of gators in need of being moved has increased to near impossible proportions.

With continual urging from the Commission, the Department of the Interior is removing the alligator from the endangered species list in Florida to make possible a program of effective alligator population control. An alligator management plan was instituted in 1976 and will be implemented in 1977.

Program: QUOTA HUNT SYSTEM

Due to the popularity of the wildlife management area system, many areas experienced extremely heavy hunting pressure during the first two weekends of the hunting season. The quota hunt system was designed to improve the quality of public hunting and to spread out the wildlife harvest over a longer period of time.

Progress:

Quotas were set on 41 wildlife management areas to regulate the number of hunters during the first nine days of the season. Sportsmen were required to obtain a free permit on a first-come, first-serve basis for the area of their choice. Quotas were determined by a formula derived from the size of the area, the habitat type and estimated game animal populations. During the first year, a total of 59,000 permits were issued. Response from the public was overwhelmingly in favor of continuing the program.

Program: ENDANGERED SPECIES

Florida has more endangered species than any other continental U.S. state. Research and surveys are required to discover and monitor endangered populations before effective management is possible. Immediate emphasis on some species is required (for example, the Florida panther which numbers fewer than 30).

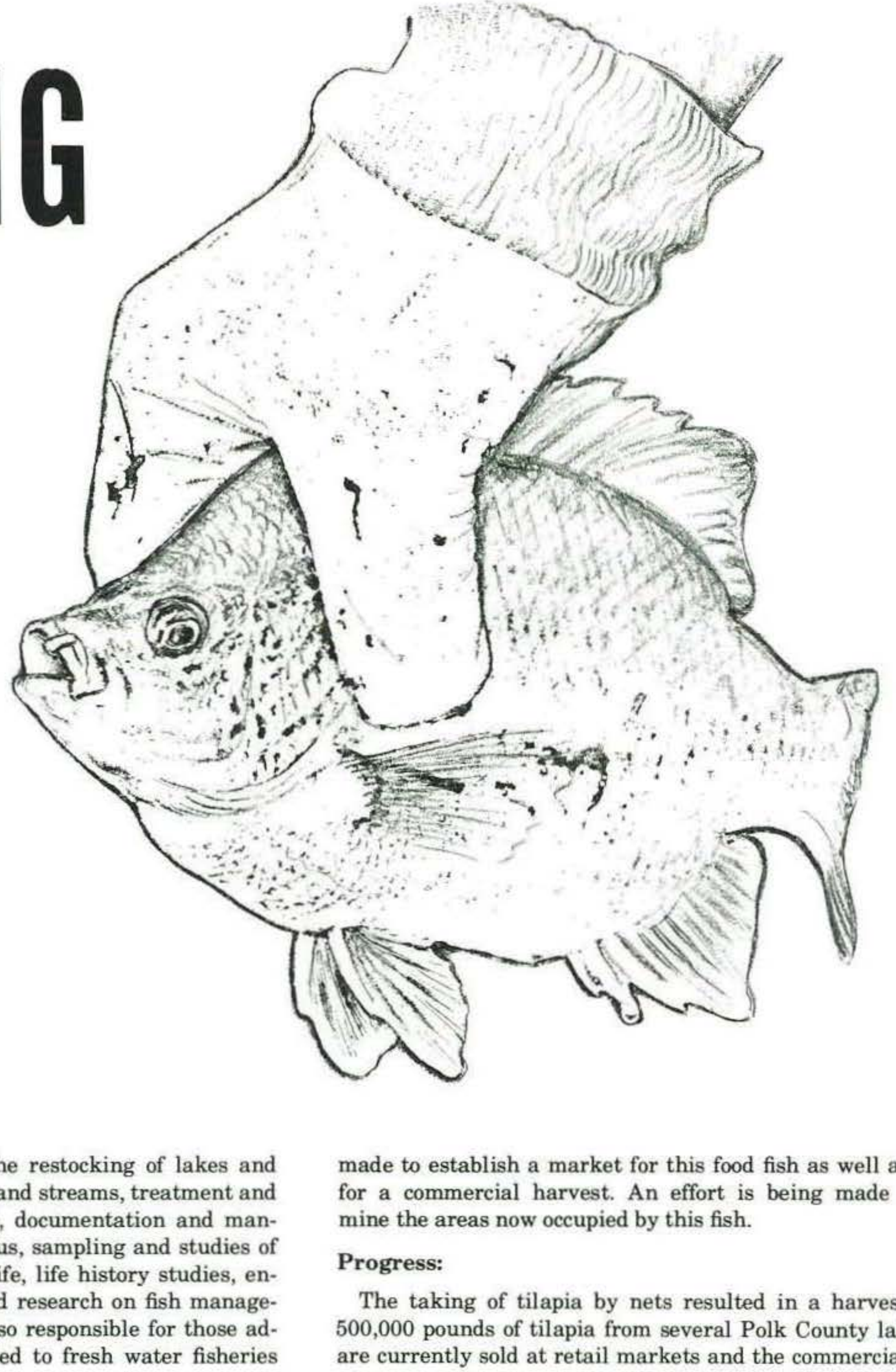
Progress:

Recovery team operations are under way for the panther, brown pelican, Everglades kite, crocodile, alligator, dusky seaside sparrow, and manatee. Close monitoring of the brown pelican has indicated a stable population in Florida. Florida pelicans are now being used to restore the Louisiana population. Recovery plans have been written for the dusky seaside sparrow and brown pelican and recovery plans for three other endangered species are to be finished by next year. A complete listing of all endangered wildlife has been compiled. Plans are being accelerated for protective measures for the other endangered species under a new Federal Aid project to be initiated before the end of 1976.

FISHING

to shorten the time between bites through

FISHERIES MANAGEMENT



This Division is responsible for the restocking of lakes and ponds, the management of rivers and streams, treatment and renovation operations, identification, documentation and management of exotic species, creel census, sampling and studies of fish populations and other aquatic life, life history studies, environmental surveillance and applied research on fish management techniques. This Division is also responsible for those administrative functions directly related to fresh water fisheries and aquatic weed control programs.

Program: UTILIZATION OF TILAPIA AS A COMMERCIAL FOOD FISH

Imported as a possible control of aquatic vegetation and a new sports fish, the tilapia has failed at both and has become the predominant fish in many degraded lakes. Efforts have been made to establish a market for this food fish as well as provide for a commercial harvest. An effort is being made to determine the areas now occupied by this fish.

Progress:

The taking of tilapia by nets resulted in a harvest of over 500,000 pounds of tilapia from several Polk County lakes. Fish are currently sold at retail markets and the commercial harvest of tilapia must be viewed as a wise use of the resource as well as an estimated $445,000 boost to the economy of the retail fish market.

Program: NORTHWEST FLORIDA STREAMS PROJECT

This program, begun in March of 1976, was developed to study the fisheries habitat and provide a means for improving recreational fishing opportunities in northwestern Florida rivers.

Progress:

Preliminary habitat surveys have been completed on portions of the Blackwater, Yellow and Escambia Rivers. Studies of the Blackwater River have indicated suitable habitat to support redbreast sunfish (river bream). An experimental stocking of redbreast has been scheduled for 1977.

Program: LAKE TALQUIN STUDY

Objective of this study of Lake Talquin, Florida's largest manmade impoundment, located just west of Tallahassee is to

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"THE ONLY TRUE DEMOCRACY IN THE WORLD IS EXPERIENCED WHEN A MAN IS FISHING—ALL MEN ARE EQUAL BEFORE FISHES."

Herbert Hoover

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monitor the fish population and maintain sport fishing for both freshwater game fish and striped bass.

Progress:

The continuing study indicates the bass population is in excellent condition with adequate reproduction. Stocking of striped bass continued with 120,000 fingerlings. A total of 632,000 striped bass have been stocked in Lake Talquin since 1968 and anglers regularly report striped bass in excess of ten pounds. Lake Talquin also provides a source of striped bass brood stock for hatchery production of both striped and sunshine bass.

Program: LAKE JACKSON STUDY

To conduct creel census and study, both the aquatic habitat and impact of urbanization of the fishery of the popular Big Bass Lake located near Florida's capital city.

Progress:

Fish population samples indicate an average of 88 pounds of fish per acre with abundant bass reproduction. Many young bass of the 1975 season have attained eight to 13 inches in length. The creel census indicates both angling effort and success was extremely high and, when compared to other waters, Lake Jackson continues to rank high as a trophy bass lake. Urban development within the drainage basin has had a damaging effect on the southern portion of the lake.

Program: ST. JOHN'S RIVER FISHERY STUDY

A continuing research program designed to document factors affecting the fish and fishing in the St. Johns River.

Progress:

Food habits of game fish were established showing trends in food chain relationships. Vegetation work was completed with information obtained on plant-soil-water relationships. Sediment studies showed distinct filling of unconsolidated mucks in the upper lakes of the river system. Limnological and water quality studies are continuing. A total of 1,372,893 striped bass were stocked in the river and other Putnam County waters.

Program: WATER LEVEL MANIPULATION

A program designed to improve fish and fishing by creating water level fluctuation as a result of mechanical drawdown.

Progress:

A six-year fisherman creel survey of Lake Tohopekaliga was completed and documented a highly favorable response of fish and fishermen to the drawdown. The average angler's success increased by 50 per cent as a result of the Lake Tohopekaliga project. Other lakes scheduled for drawdown include Lake Iamonia near Tallahassee, Newnans Lake near Gainesville and Lake Kissimmee in south Florida.

Program: EXOTIC FISH RESEARCH

In 1971, a research station was constructed on the campus of Florida Atlantic University, complete with indoor and outdoor ponds for study of exotic fish that have invaded or are likely to invade Florida. Twenty-three species of exotic fishes are now documented as becoming permanently established in the state. A program has been designed to evaluate the effects of non-native fish on native game fish and to establish temperature tolerances of exotic fish. The program is based at the Boca Raton Research Center and also involved with the artificial spawning of snook.

Progress:

Studies continued in an effort to evaluate the impact of fish such as the walking catfish on bass and bluegill and to determine the lethal temperature of exotic fish as a factor that may limit the spread to other areas and states. New systems were used to rear a limited number of snook and resulted in the first successful attempt to hatch and rear snook under laboratory conditions.

Program: GRASS CARP RESEARCH

The grass carp or white amur was imported into Florida as a control agent for aquatic vegetation. No one can dispute the ability of the fish to devour large quantities of vegetation; however, little is known of the effects to other aquatic life.

Progress:

A study of four ponds was completed and a noted reduction in aquatic life at all levels occurred in all ponds after introduction of the grass carp. Additional research on this fish is under way at Lake Wales, Deer Point Lake, and Lake Conway to document the effects of grass carp on the aquatic community.

Program: OKLAWAHA BASIN FISHERIES RESEARCH

A research program designed to investigate and document environmental changes affecting the waters and fisheries of the Oklawaha River Basin.

Progress:

Creel surveys indicate the harvest of black crappie in Lake Griffin set a new record with over 298,000 fish being caught during the past year. Work continued on the proposed Lake Apopka restoration plan. Lakes Harris, Dora, Eustis and Griffin were stocked with 336,850 sunshine bass. Aerial photos of Lake Griffin from 1947 and 1964 were analyzed to determine the area covered by water lilies. These results and mapping reviews show a decline from 4,560 acres in 1947 to 66 acres in 1976 or a loss of 4,494 acres of productive fish cover.

Program: ARTIFICIAL FISH ATTRACTORS

A program designed to create effective artificial cover and food accumulator to attract game fish and to encourage individuals and organizations to establish similar attractors in local water.

Progress:

Personnel constructed 28 attractors in 11 lakes covering 14,962 acres during the year. An attractive "how to" bulletin was made available and distributed to numerous groups and individuals. This program has proved so successful that, in the coming year, a statewide program will be undertaken to construct additional attractors in many more lakes.

Program: LARGEMOUTH BASS RESEARCH

A research program designed to document facts leading to progressive management programs for largemouth bass.

Progress:

This program has provided valuable information to the angler as biological secrets are uncovered. Biologists have found that large numbers of forage fish (shad, tilapia, etc.) before, during, and after spawning caused male bass to leave the nest and nesting areas. This resulted in elimination or reduction in spawning success. To study bass stocking success, tiny wire tags were used on 11,900 fingerlings stocked in Trout Lake and 25,000 in the St. Johns River. Some of the stocked fingerlings have survived for over a one year period. Further study will use sonic or radio tags on adult fish to check balance and movements.

Program: STRIPED AND SUNSHINE BASS RESEARCH

A program designed to produce, stock and study striped and sunshine bass, evaluate sports fishermen's catch and establish criteria for lakes and future stocking needs.

Progress:

During the past year, a total of 980,609 of these fish were produced and stocked into 52 lakes comprising 94,087 acres. Evaluation of the stocking program indicated fish in the one year class were most abundant in the anglers catch and averaged about one fish per acre. The best fishing was noted to be during the winter months and the record sunshine bass weighed

5.35 pounds at three years of age. Striped bass stocking has been limited to areas where stripers were historically found.

Program: LAKE OKEECHOBEE FISHERY UTILIZATION

Population monitoring was continued along with the development of a new program designed to assist in curing the ills and better utilizing the resources of this great lake.

Progress:

It has been determined that the sports fisherman has been unable to adequately harvest the available game fish in Lake Okeechobee. Last year, fishermen were able to remove only about 1/12 of the number of fish necessary to maintain a dynamic fish population. It is proposed that a seining program be instituted to harvest the overpopulated fishes, both rough and game, with the exception of bass and pickerel. With the removal of these fishes, a certain amount of nutrients present in the lake and now causing problems with algal bloom will be removed. This program was approved by the 1976 legislature and has received widespread public attention and approval. The program is scheduled to be under way by October 1976.

Program: FISH HATCHERIES

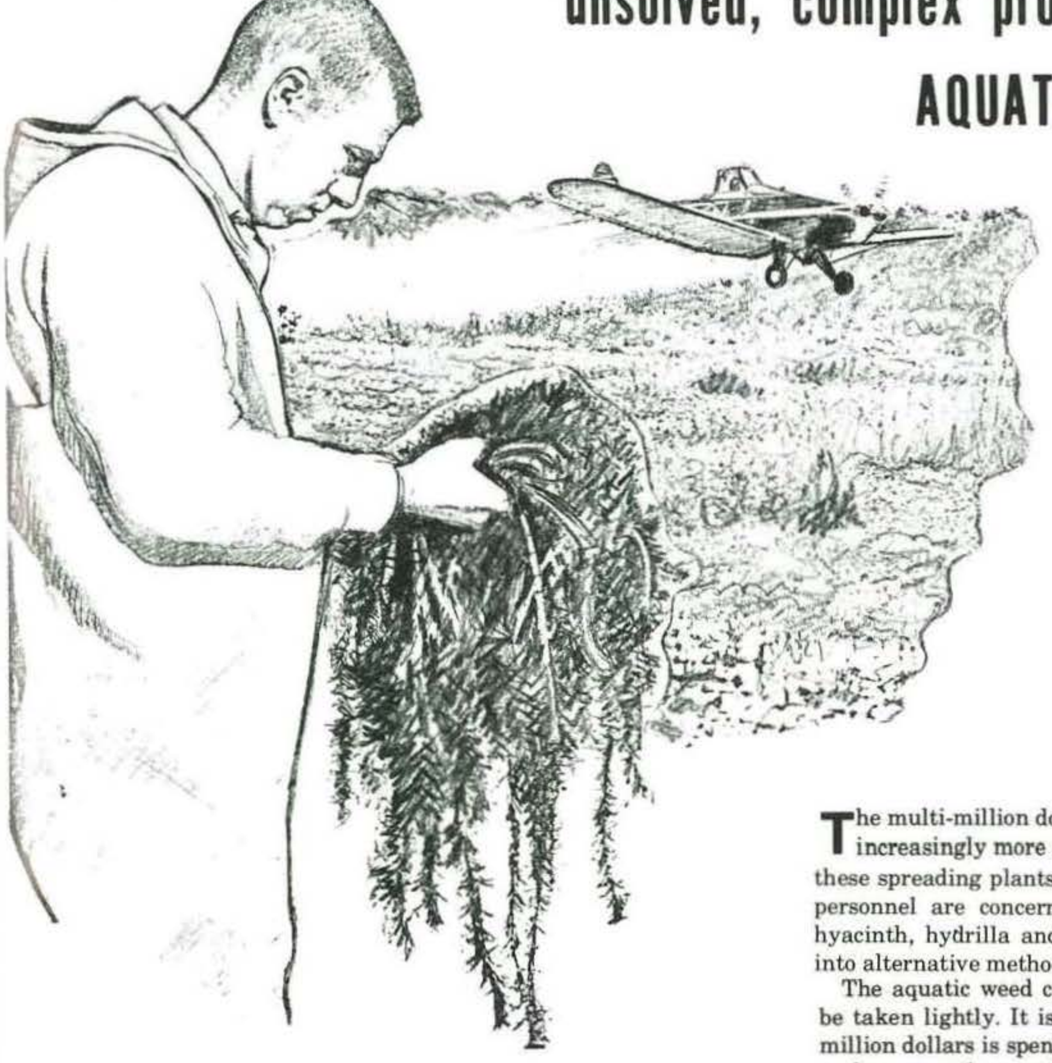
The stocking of fish in selected waters has long been an important tool of the fisheries biologist. The Commission operates two hatcheries, one in south Florida and one in northwest Florida. Fingerlings from these two facilities are stocked statewide.

Progress:

The two fish hatcheries stocked 460 bodies of water consisting of 224,419 acres with 2,309,500 fishes in Florida and shipped 1,140,000 fry and 18,000 fingerlings out of the state. Production was integrated with research projects which, along with regional fish management personnel, provided assistance and the total hatchery related cost amounted to approximately $117,000.

Major achievements were the elimination of striped bass handling mortality at the Blackwater Hatchery and both hatcheries undertook expansion projects. Blackwater is in the construction phase and Richloam is in the planning phase. The goal of both hatcheries continues to be to produce fine quality fingerlings to fill all stocking applications without having significant overproduction.

SEEKING to manage an unsolved, complex problem through AQUATIC WEED CONTROL



"THESE ARE THE TIMES THAT TRY MEN'S SOULS."
Thomas Paine

"OF TWO EVILS, THE LESS IS ALWAYS TO BE CHOSEN."
Thomas à Kempis

The multi-million dollar headache of aquatic weeds is becoming increasingly more obvious each year, and trying to deal with these spreading plants is shared by many. Aquatic Weed Control personnel are concerned with controlling the spread of water hyacinth, hydrilla and other aquatic weeds as well as research into alternative methods of control.

The aquatic weed control problem is not something that can be taken lightly. It is estimated that between seven and eight million dollars is spent each year in Florida for control methods, and more and more infested bodies of water are being discovered. Massive growth of aquatic weeds can destroy fish and

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wildlife habitat, end recreational use of a lake, present health hazards and lower property value.

Program: WATER HYACINTH CONTROL

Water hyacinths are perhaps Florida's biggest aquatic weed headache. One single plant can produce 60 thousand new plants each year. Much of the effort is devoted to chemical spraying in an attempt to clear out problem spots. The free-floating plants can be spread by the wind to jam up navigable waters. In addition, the wind and weather conditions must be perfect before any chemicals are used to minimize possible adverse effects.

Progress:

A force of 19 airboat spray crews has been stationed around the state, close of known water hyacinth problem areas. This cuts down the time needed to respond to a problem. A spray plane is located in Lakeland which can be used for aerial spraying of extensive water hyacinth jams.

Program: HYDRILLA CONTROL

A relative newcomer to the aquatic weed picture is hydrilla which is catching up to water hyacinth in its rapid spread throughout central and south Florida. Polk County infestations alone number between 10 and 12 new lakes a year. Orange Lake in Marion and Alachua Counties has more than 12,000 acres of hydrilla, making it the largest body of water completely invaded by hydrilla. Efforts to control hydrilla have been complicated by the plants tremendous reproductive capability.

Progress:

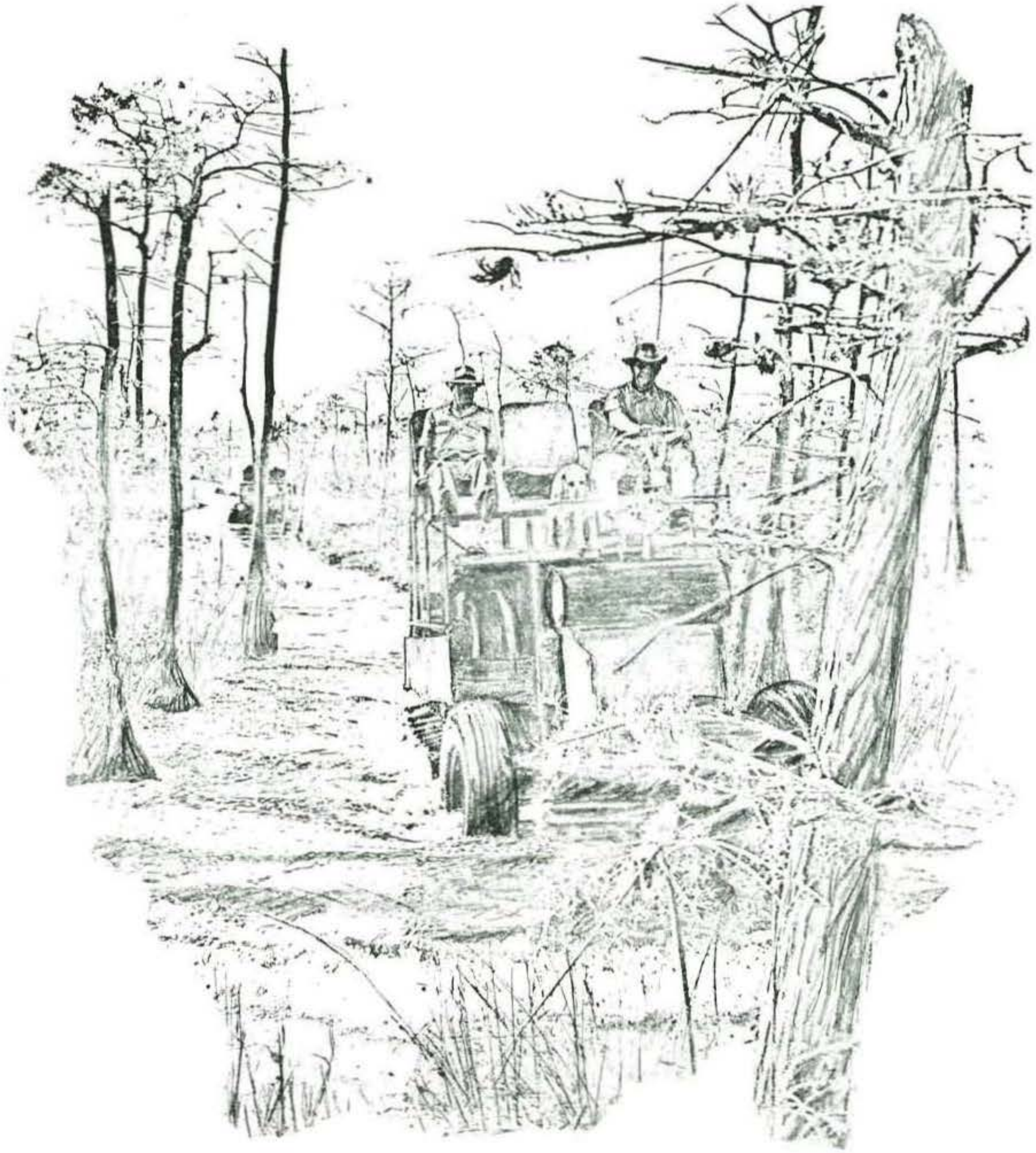
Pilot studies were conducted to provide relief to the fish camp owners and sport fishermen by chemically cutting boat trails and opening fishing holes in Orange Lake and Lake Trafford in Collier County.

Program: AQUATIC VEGETATION SURVEY

Keeping up with the spread of noxious weeds is not easy. Each year, an inter-county survey is made by aquatic botanists and other personnel to determine where and how extensive the weeds are in water which embraces more than one county.

Progress:

Information is gathered by water, air and ground equipment



to determine the number of acres or problem vegetation, primarily focusing on waterhyacinths, hydrilla and Eurasion watermilfoil. Last year, almost 90,000 acres were discovered in these waters alone.

Program: AQUATIC WEED EXTENSION SERVICE

Private landowners faced with nuisance weeds turn to the aquatic botanist for assistance. He can dispense information on how to treat the problem.

Progress:

Aquatic botanists stationed in five field offices provide the public with information on the latest and safest methods to control undesirable vegetation and keep environmental damage to a minimum. Based on the nature and extent of the problem, the botanist can recommend biological, chemical, mechanical treatments or drawdowns as options.

Program: LAKE WALES GRASS CARP PROJECT

Alternative methods are always being sought for control of aquatic weeds. One of the possibilities is the use of a foreign fish, the grass carp, in the battle against hydrilla.

Progress:

A project is under way on Lake Wales to determine the effect of grass carp on native sport fish. This project is funded through the Aquatic Weed Control budget.

Program: AQUATIC WEED CONTROL RESEARCH

Aquatic weed control is more than just dumping chemicals or pulling up the offensive vegetation. It involves research into new methods of control along with continuing evaluation of past and present methods.

Progress:

Three biologists stationed at the Eustis Fisheries Research facility conduct research on topics such as the use of sulfuric acid for hydrilla control, the effect of approved herbicides on nontarget species and bottom organisms, changes in aquatic weed composition and vegetation changes in certain bodies of water.

GUARDING a unique wilderness with planned use through EVERGLADES RECREATION

> "WHEN ONE TUGS AT A SINGLE THING IN NATURE, HE FINDS IT ATTACHED TO THE REST OF THE WORLD."
>
> John Muir

Florida's Everglades never cease to attract people to enjoy this disappearing wilderness. But, without a plan for development, the rich habitat and wildlife resource could be lost forever. It is to this task the Everglades Recreation staff concentrates its efforts. Their job is to develop, operate and maintain the area for the use, enjoyment, appreciation and learning by the general public. This can range from providing the law enforcement power to protect the resource to planning and construction of recreational facilities in keeping with the heritage of the area.

Program: UPGRADING AND EXPANDING EXISTING FACILITIES

Taking what is now available to the public and making it even better is an ongoing project. This growth is always coupled with a concern for the habitat and wildlife resources.

Progress:

Two major facilities, the Loxahatchee Recreation Area and the Everglades Holiday Park, came under scrutiny this year for ways to improve their appeal to the public. Improvements ranging from a new septic system to a multi-lane boat ramp were constructed. More camping opportunities were added for the ever-increasing number of visitors to the area.

Program: DAY USE FACILITIES

Excursions to the Everglades don't necessarily mean camping for a week or weekend. Much of the wilderness area is within a few hours drive from major urban areas, making it perfect for an afternoon of fishing or picnicking.

Progress:

Two access facilities and one day-use facility were completed this year. Construction of these three areas added more picnic shelters, grills, boat ramps and bank fishing areas to the list of spots visitors could enjoy.

Program: EXOTIC PLANT CONTROL

The Everglades unique exosystem has been threatened by the unchecked growth of plants which are not native to the area. Research on how to check the spread of such plants without harming the habitat and resources of the Everglades is constantly under way.

Progress:

The Melaleuca tree has been the subject of much of the research this year. The trees have been spreading at an alarming rate and have proven resistant to 20 herbicides. Two, however, have shown limited success and experiments on these chemicals will continue.

Program: PRESCRIBED BURNING

During periods of drought, massive fires sweep through the Everglades, destroying millions of acres of vegetation as well as animal life. One way to reduce the number of fires each year has been through carefully controlled burning of sawgrass during certain times of the year.

Progress:

Everglades project staff, wildlife management personnel and State Division of Forestry personnel burned approximately 50,000 acres in Conservation Area 3-A.

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FINANCIAL STATEMENT

July 1, 1975 through June 30, 1976

Unencumbered Cash . . . .$	134,777
REVENUE:	
General Revenue Funds	$ 3,534,200
Licenses and Permits Funds	6,039,819
Aquatic Weed Funds	1,503,278
Federal Aid	1,311,803
TOTAL REVENUE	$12,389,100
EXPENDITURES:	
Fisheries Management	$ 1,447,620
Wildlife Management	1,642,073
Law Enforcement	3,690,302
Communications	668,557
Information and Education	754,552
Administrative Services	1,501,687
Environmental Protection	173,327
Everglades Recreation	234,634
Aquatic Weed Control	1,141,134
Fixed Capital Outlay	825,124
Environmental Impact Study	258,614
TOTAL EXPENDITURES	$12,337,624
Unencumbered Cash . . . .$	185,653

ADMINISTRATIVE STAFF 1975-76

DR. O. E. FRYE, JR.
Director

H. E. WALLACE
Deputy Director

ROBERT BRANTLY
Deputy Director

JAMES E. HEATH, Director
Administrative Services Division

JOHN W. WOODS, Director
Fish Management Division

FRED W. STANBERRY, Director
Wildlife Management Division

BRANTLEY GOODSON, Director
Law Enforcement Division

JAMES T. FLOYD, Director
Information-Education Division

R. DANIEL DUNFORD, Chief
Environmental Protection Bureau

COMMISSION MEMBERSHIP 1975-76

HOWARD ODOM, Marianna	Appointed January 10, 1972
OGDEN M. PHIPPS, Miami	Appointed January 18, 1973 Resigned January 5, 1975
E. P. BURNETT, Tampa	Appointed January 17, 1973
RANDOLPH R. THOMAS, Jacksonville	Appointed January 22, 1974
DONALD G. RHODES, West Eau Gallie	Appointed December 12, 1974
GEORGE G. MATTHEWS, Palm Beach	Appointed September 9, 1975

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INVADERS OF THE EVERGLADES

Brazilian Pepper

Photos by Lou Gainey

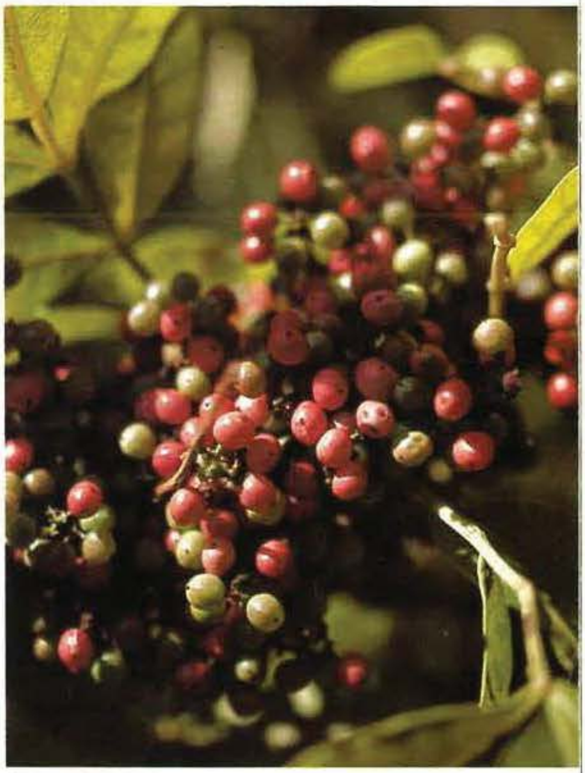

Photo by David Lahart

By DAVID LAHART

Florida has seen many invasions during its short history. Early records indicate that Indians first explored our 450-mile long peninsula. Europeans arrived and named the beautiful area Florida, the land of flowers. Settlers gradually invaded and gradually changed the landscape of the southernmost state in the union. The coming of the railroads opened Florida to masses of people and change became a way of life for a very fragile ecosystem. Many people feel that these invasions by humankind would destroy what was Florida. But now scientists warn us about a new kind of invader, an invader that is even more threatening to Florida's environment. That invader is exotic plants.

Exotic or non-native plants continue to march across the major ecological communities of Florida. The situation is especially critical in south Florida where many scientists predict that the Everglades are losing their unique vegetation because of the invading exotics. At a recent workshop co-sponsored by the Florida Wildlife Federation and the Game and Fresh Water Fish Commission, scientists, sportsmen, and legislators reviewed the exotic plant problem and mapped strategies for combating the threat.

To understand the seriousness of the problem, it is first necessary to understand the subtle differences that exist in that vast ecosystem that Marjory Stoneman Douglas aptly named, "The River of Grass." South Florida's environment is the biological response to 20,000 years of evolution. The patterns of plant and animal life are the result of natural change after centuries of adaptation. The

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Everglades represented a balanced ecosystem that was maintained by the forces of nature. The kinds of plant and animal communities found in the major regions of the Everglades were shaped by the local geology and water cycles. This was a dynamic system. It changed, but in predictable directions and over centuries of time.

The south Florida environment commonly called "The Everglades" is, in reality, comprised of distinct sub-regions linked by flows of water. From the Kissimmee Basin to Florida Bay, from the Atlantic Coastal Ridge to the Big Cypress Swamp and Mangrove Islands ecological changes are occurring at a rapid and unpredictable rate. These changes, influenced by modern man and technology have helped provide a way for exotic invaders of the Everglades.

While South Florida has an abundance of introduced plants, the most important terrestrial invaders appear to be the Melaleuca or punk tree, the Australian pine or Casuarina, and the Brazilian pepper or Florida holly. Aquatic exotics such as water hyacinths, Eurasian milfoil, and Hydrilla also pose significant environmental problems but are beyond the scope of this article.

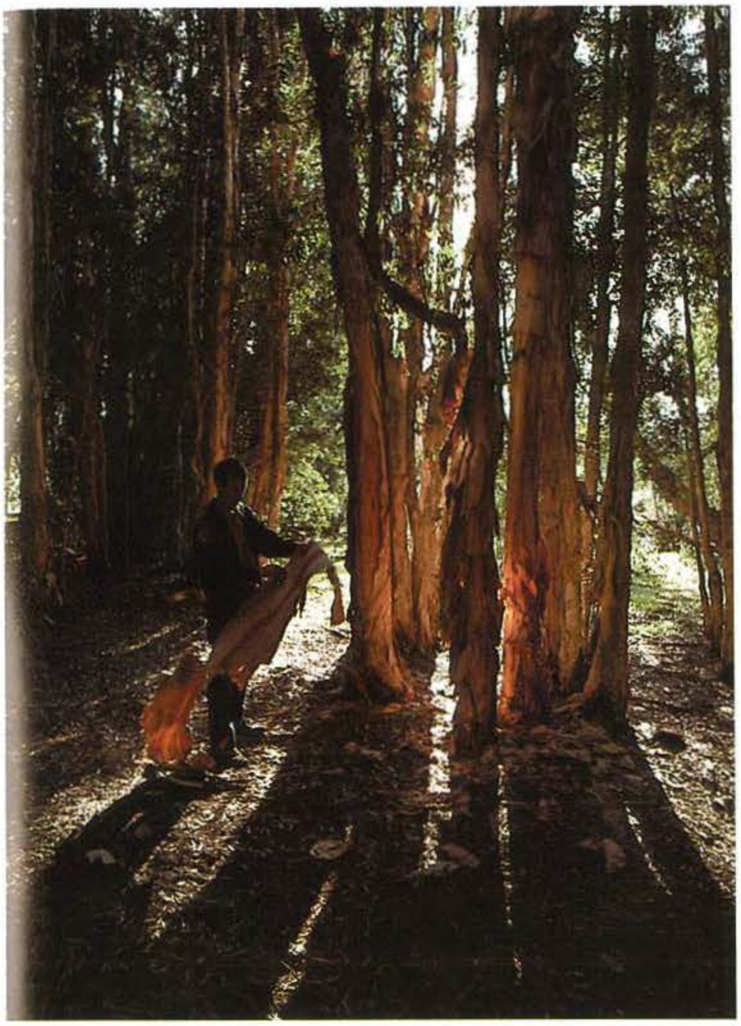
Brazilian pepper (*Schinus terebinthifolius*) was probably first introduced as an ornamental shrub. It is an attractive landscaping plant with shiny, green leaves and bright clusters of red berries. Many species of birds, especially robins, find the berries edible. The birds, in turn, spread the seeds over a wide area, distributing the plant throughout south Florida. In many old fields and on road banks, it is the most common plant.

On dryer areas, Brazilian pepper often grows in dense stands, crowding out native vegetation and creating a monoculture that excludes most wildlife species. The pepper usually grows as a shrub, but under favorable conditions, it does grow to tree size. The poor quality wood has no commercial value; it doesn't even make good campfire material. Interestingly enough, this pepper is in the same botanical family as poison ivy. Little wonder that sap of the Brazilian pepper is an irritant that causes a rash on many people! Severe rash cases have been reported by people who were merely trimming the Brazilian peppers around their homes.

This exotic species is an opportunist. It is most likely to invade land that has already been disturbed by man's activities such as abandoned agricultural land and canal banks. Fire seems to retard the growth of the Brazilian pepper, but it grows back, often more vigorously than before. Attempts at chemical control have met with mixed success although research is continuing at an accelerated pace.

Australian Pine

Photos by David Lahart



Photos by William A. Greer

No doubt, some people think that the Brazilian pepper adds a measure of beauty to their suburban lot. Perhaps they do, but the problems of thousands of acres of public lands rendered unfit for recreational use because of the toxic nature of this plant is a terrible price to pay for shiny leaves and red berries around a few homes.

Undoubtedly human beings have caused more change than any other creature that ever inhabited the earth. Some change is purposeful, planned, and carefully done. But, often change is the result of an accident or a seemingly minor act. This is the case with most biological introductions and the Australian pine is a superb example. There are at least two species of Australian pine in Florida, (*Casuarina equisetifolia and C. glauca*), that were purposefully introduced for wind breaks and erosion control. The elaborate root system and quick growing characteristics of Casuarina made it ideal to plant along roadways and canal banks where erosion presented a problem. Its straight stem and long green needles don't make a particularly attractive tree, but it has proven itself an aggressive invader of Florida.

It is especially formidable along beach areas where it excludes native vegetation. It may form dense barricades eliminating valuable coastal habitat for nesting birds, sea turtles and, in the Everglades National Park, the endangered Florida crocodile. Even the needles of the Australian pine seem to affect the growth of other plants by forming a thick layer of litter beneath the pines, restricting the growth of a healthy understory. This increases the probability of beach erosion.

Melaleuca

Although this species has a potential commercial value, there is no real market for the wood at this time. The prospect for developing a market is being explored by researchers at the University of Florida. But even if a market is developed, the tree will have limited value and will continue to raise ecological havoc in areas where commercial cutting is not feasible or desirable.

Control of the Australian pine is difficult and expensive. Individual specimens can be removed by using chemicals, and fire has been successful in some cases. Mechanical removal is not effective because the tree readily propagates by root sprouts and removing the stem stimulates vegetative shoots, forming a new and even denser clump of pines.

The lesson of the Australian pine is obvious. Quick solutions to problems are often not the best solution and care should be taken to prevent the solution from becoming a new and bigger problem.

The most feared of the invaders is the Melaleuca (*Melaleuca quinquenervia*). This plant has been used extensively as a landscape tree and was widely and deliberately spread throughout the Everglades in an attempt to vegetate the "useless swamp" with a wood-producing tree. The species is invading native plant communities with alarming speed and vigor. Unfortunately, little effort has been made to develop commercial uses for the timber and some experts feel that the physical characteristics of the wood will inhibit any significant uses.

If man were to design a tree to conquer wetlands, he would do well to follow the pattern of the Melaleuca. One tree may produce literally hundreds of thousands of tiny seeds that are encased in

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protective capsules. The minute seeds are released when a limb is cut off or broken. Even fire will prompt the seeds to disperse from the capsules. While Melaleuca will grow almost anywhere, they seem to prefer disturbed, moist sites. The seedlings and the adult plants survive both flood and drought. During times of flooding, the stems produce additional roots at the water level and seedlings actually grow new leaves even when totally submerged for short periods of time. The thick bark insulates the tree from most natural fires making burning impractical as a control measure. In fact, fire may help spread Melaleuca by forcing the seed capsules open and releasing the seeds on fire disturbed ground.

If a tree is cut, the stump sprouts, the roots send up shoots, and the stem, unless destroyed, will sprout throughout its length to form a new thicket. If the stem is cut into pieces, the pieces sprout and, of course, all the seeds that were on the branches are released to grow more trees!

Efforts to develop a means of chemical control for Melaleuca have not been very successful. Some herbicides will kill individual stems, but the roots still send up additional shoots creating a patch where a single specimen once grew. Perhaps some combination of mechanical and chemical control will be developed in the future but for now the invading melaleucas clearly have the upper hand.

The pale yellow, bottlebrush flowers are attractive but can cause serious health problems to allergic individuals and people with respiratory problems. Interestingly enough, it's not the Melaleuca pollen that causes the health problems. There appears to be a volatile substance that comes from the plant and its flowers. Older people seem especially sensitive to this substance.

Because it causes both ecological and public health problems, the invading Melaleuca is clearly creating a crisis situation. The Florida Wildlife Federation has petitioned the Legislature to allocate additional money for research and control of the plant. The need for concerted action, especially in the Conservation Areas and Everglades National Park, is vital. Cypress heads and tree islands are rapidly becoming Melaleuca monocultures. Even the man-made deer islands are rapidly being invaded by this plant species. As the plant communities change, so do the animal populations and few wildlife species use Melaleuca.

For now, the exotic plant invaders appear to be winning. The Australian pine, the Brazilian pepper, and the Melaleuca have claimed thousands of acres in South Florida and are displacing native plants and animals. Unless an active research and control program is begun, the vegetation of South Florida will largely consist of exotic species. This invasion must be halted.

Unfortunately, exotic plants cannot be legislated away. Floridians must turn to the scientific community for help in developing the control methods that will stop the invasion and eradicate the species from sensitive areas and control them in other areas. Good applied research takes time, money, and energy and delays only worsen the problem. Until scientists can provide a comprehensive program, there are actions that can be taken. For example, the species should not be planted as ornamentals and the production of them in nurseries should be terminated. Possible use for the wood, especially posts from the Melaleuca and the Australian Pine, should be carefully explored. Individual plants that are invading new territory should be carefully eliminated by the best means available. Certainly inter-agency cooperation is needed to develop a strong offensive posture to attack these plants, Florida's most aggressive invaders.

Exotics are often symptoms of environmental stress. The current exotic plant problem in the Everglades reflects an ecological system experiencing different kinds of environmental problems. Modifications of the natural wet and dry cycle, changes in land use, and even invasions by humankind are all contributing factors. Unnatural increases in the frequency and severity of fire have also provided the additional disturbance that appears necessary for exotic populations to become dominant.

In the final analysis, the exotic problem largely reflects the people problem. Both problems are indicators of dramatic, rapid, and perhaps irreversible change in our environment. If scientists, governmental agencies, and legislators can continue to work together, the rate of change can be reduced and a more desirable direction for change provided. ●

Melaleuca FLOWER AND SEED CAPSULES

Photos by David Lahart

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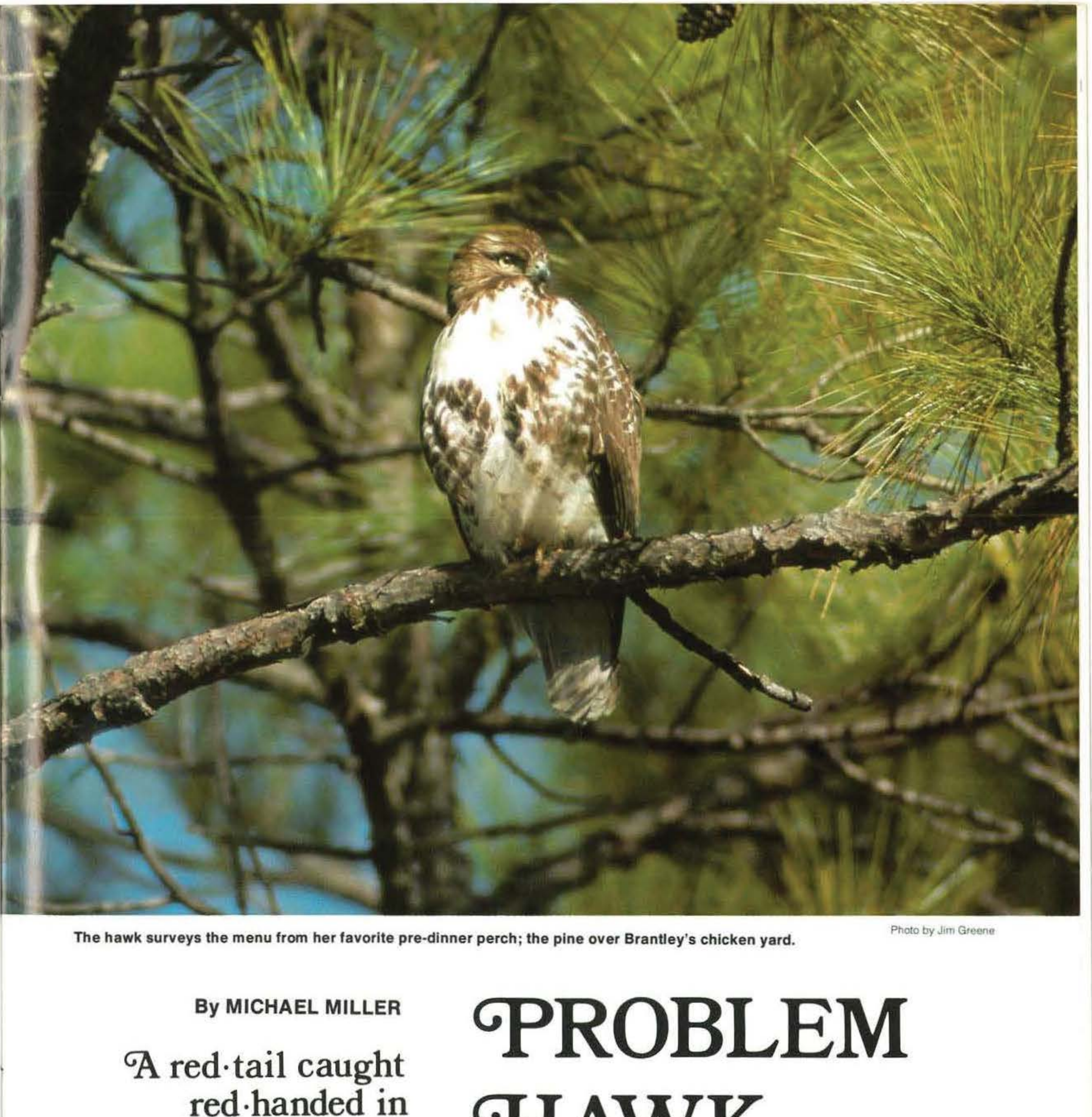

The hawk surveys the menu from her favorite pre-dinner perch; the pine over Brantley's chicken yard.

Photo by Jim Greene

By MICHAEL MILLER

PROBLEM HAWK

A red·tail caught red·handed in the chicken yard.

December's full moon hung low in the dawn sky while, to the east, a widening band of gold-blue preceded the sun. High in a stand of slash pines, a red-tail hawk awoke, withdrew her head from beneath her wing and blinked her eyes into focus in the growing light. Ruffling her feathers against the cold, she settled down to await the morning.

A few hundred yards away, Huey Brantley opened a gate and led several men into his barnyard. Casting a flashlight beam on a swatch of

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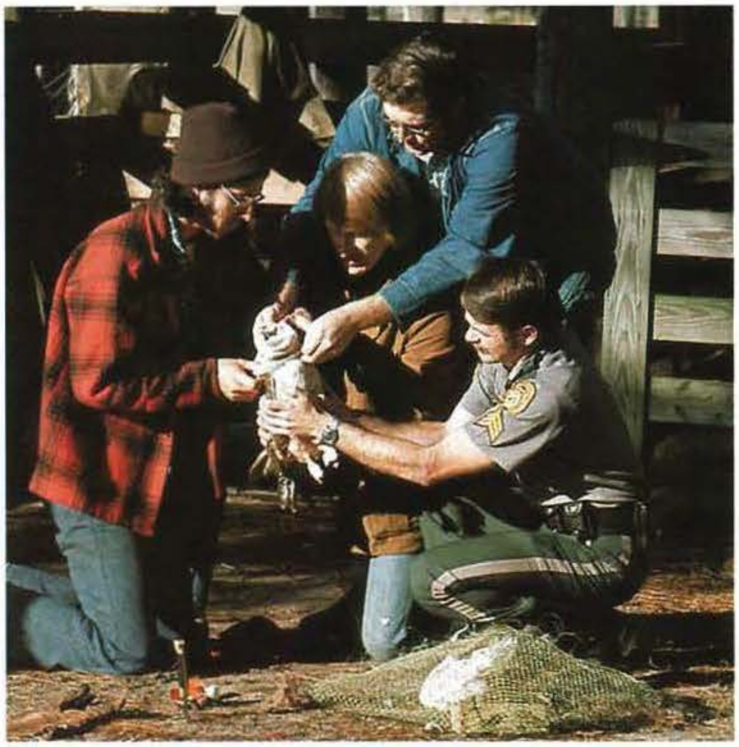
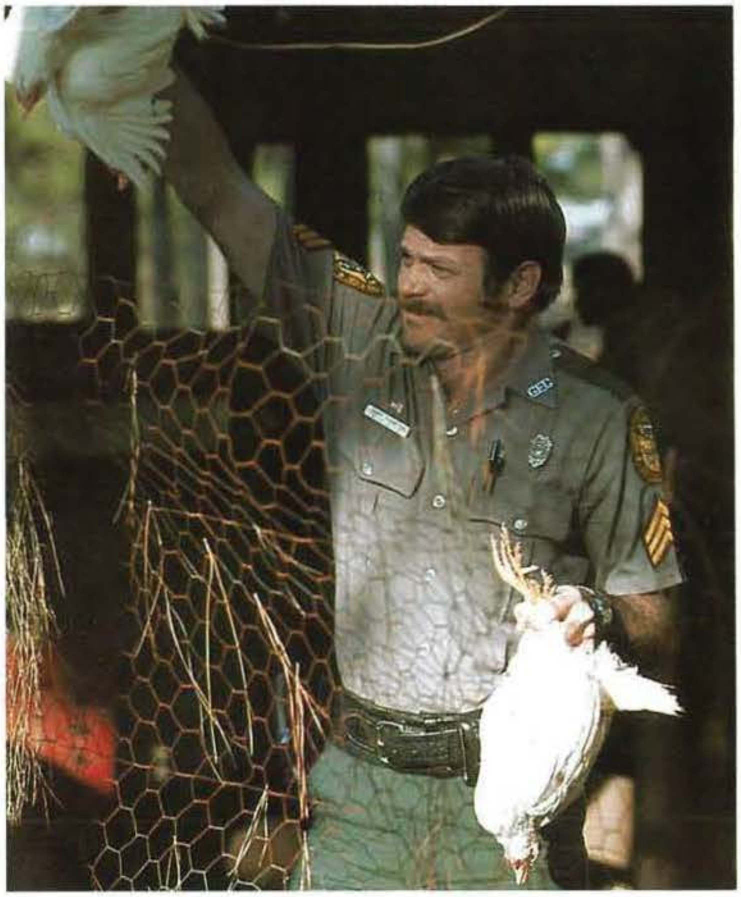
Gathered in the spirit of cooperation, from left, Graves, the hawk, Jonas, Brantley and Thompson with an unnamed, unharmed, but somewhat ruffled pullet out front. Proving to be quite a hand around the chicken yard, Sgt. Jerry Thompson, below, releases now-safe leghorns from holding pen.





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muddy feathers, he pointed to the remnants of a chicken killed by a predator. Under a large pine near the fence, the light picked out more feathers, leftovers from a previous kill.

For a few minutes, the men discussed the situation in lowered voices, then Brantley pulled a struggling half-grown chicken from a pen and handed it to one of the other men. The chicken was placed in a wire and monofilament contraption resembling a squashed crab trap, left on the ground beside the pen, and the men moved away, stamping their feet in the morning chill.

The "contraption" was a *bal-chatri*, a device invented long ago in India for trapping falcons. That morning, in a barnyard near the Liberty County town of Bristol, the men hoped it would catch a hawk.

Two days previously, Brantley had called the Game and Fresh Water Fish Commission in Tallahassee to report that a "chicken" hawk was taking his chickens. Knowing that killing any kind of hawk is illegal, Brantley sought help from his predicament through the agency responsible for protecting wildlife in Florida.

He said, "I know it's not legal to shoot a hawk —and, heck, I didn't want to kill it anyway—but I couldn't keep feeding it."

Although the Commission has no established operation for trapping nuisance birds of prey, Brantley was promised that an attempt would be made to find a solution to his problem.

A telephone call was made to Tom Harris, president of the local chapter of the Audubon Society, asking if he knew anyone who might help. Through Harris, contact was eventually made with Ed Jonas, a beginning falconer interested in capturing a bird. Jonas had already applied for an Apprentice Falconer's license and readily agreed to help trap the hawk.

Without the necessary license, however, a hawk may be trapped only under the supervision of a state or federal wildlife officer. Sergeant Jerry Thompson, Wildlife Inspector for the Game and Fresh Water Fish Commission, was notified of the problem and agreed to help.

In order to prevent the loss of more chickens, it was essential that the hawk be captured as quickly as possible. It was agreed that Thompson, based in Panama City, would meet Jonas and Art Graves, another falconer, at Brantley's home in Bristol before daylight the next morning.

Despite what you might see on *Wild Kingdom*, trapping any wild animal is unpredictable at best. To increase the chances of success, the men planned to set and bait the trap then move out of the immediate area in order not to alarm the hawk.

According to Brantley, the hawk usually fed around 9:00 a.m. Rather than chance spooking the hawk, the men had set the trap and were back in their cars by 6:30 a.m. waiting for the hawk to make her appearance.

Shortly after 7:00 a.m., the red-tail dropped from her roost and glided over the road in front of Thompson and the other men. Everyone froze as the big hawk flew steadily across the pasture, climbed abruptly and landed in a big pine—directly over Brantley's chicken pen!

But the day was only beginning. Accustomed to regular meals, the red-tail was in no hurry. Instead, she sat on her perch, occasionally contemplating her quarry and working up a good appetite for a chicken dinner.

Finally, after two hours, she could stand it no more. Unaware of her presence, the chicken had begun moving in the *bal-chatri*, tantalizing the hawk.

With her attention riveted on the decoy, the excited hawk began to move from side to side up and down the branch.

Suddenly, she became a feathered dart flashing across the barnyard. At the last instant she flared her wings, sinking yellow talons into the wire trap. Attempting to grasp the chicken, she quickly became ensnared in monofilament loops.

In an instant, Jonas was out of the car, hurdling the fence in good 220-style and running toward the trapped hawk. If allowed to struggle for long, the hawk could break free or, worse, injure herself in the trap. In either case, the purpose of the entire operation would be defeated.

Protected by a heavy leather glove, Jonas quickly subdued the bird and removed it from the trap while the other men were taking the more conventional route through the gate.

After removing the hawk from the trap, Jonas and Graves fitted her with a hood and a knitted sleeve, quieting the bird and protecting her wings from possible injury. Her days as a "chicken" hawk over, the red-tail would be taken to Jonas' home in Tallahassee and trained to return to the falconer's fist.

Satisfied that the hawk was being properly handled, Thompson helped to "handle" another chore; totin' chickens.

In order to protect the flock, Brantley had placed his chickens in a small holding box. Now that the hawk was trapped, the chickens could be moved back to their large pen. With a grin, Thompson helped to carry the 60-odd chickens, six at a time, from the holding box to the pen and never got a spot on his spit-shined shoes.

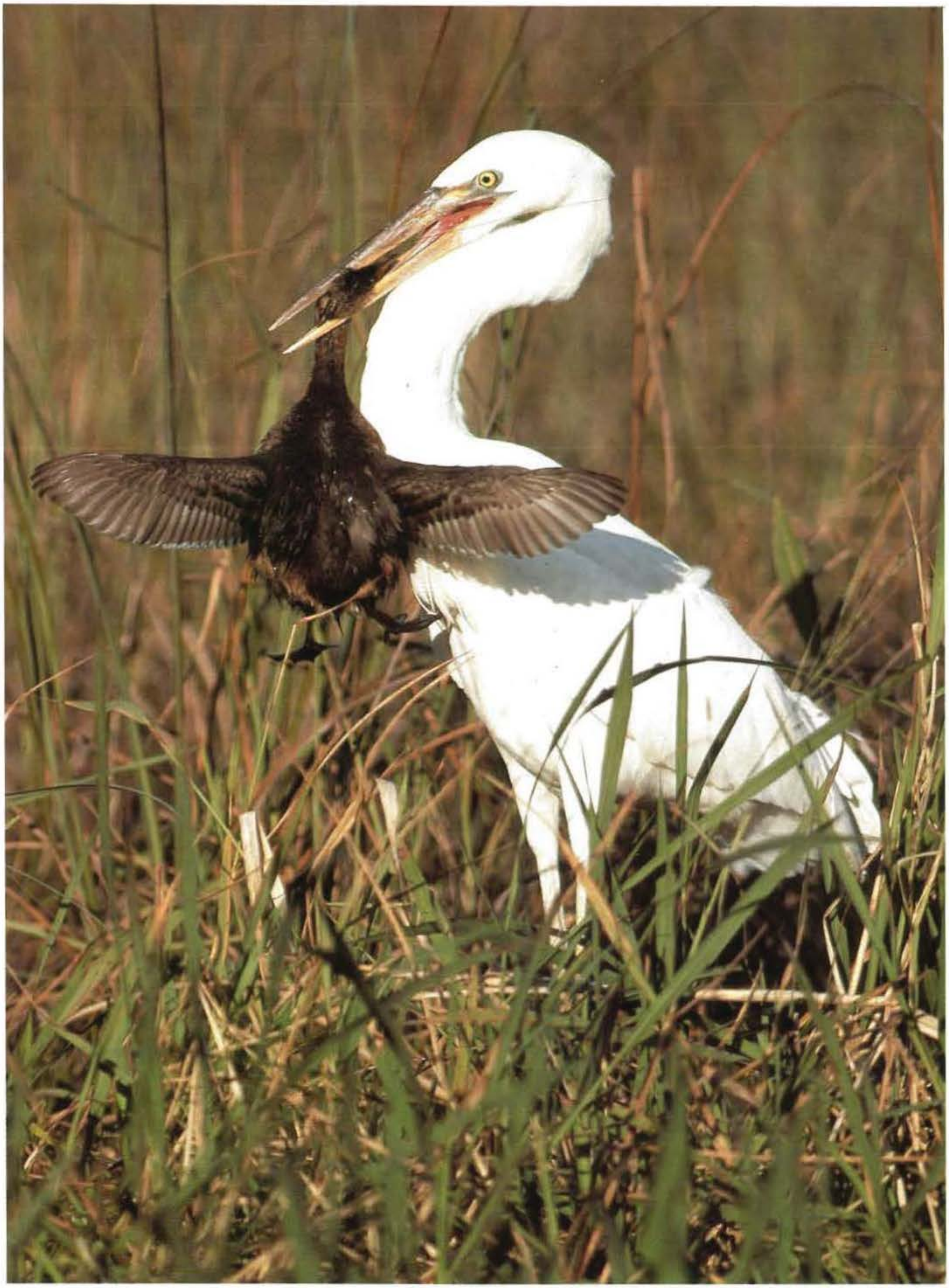
Although the operation is one that might be considered as "all in a day's work" for a wildlife officer, Thompson pointed out that the Commission is neither equipped to routinely trap hawks nor is in the business of providing hawks for falconers.

This situation, he said, was unusual, due largely to the cooperation of Jonas, Graves and, especially, Brantley.

Thompson said, "We're always glad to help out when there's a problem caused by wildlife. But it's just so much more enjoyable when we have a chance to work with people who are concerned and cooperate as everyone did today." ●

Photos by William A. Greer

After trapping the hawk, Ed Jonas begins the long task of training the red-tail to hunt and return to his fist.



PIED-BILLED GREBE AND A "VERY UNFRIENDLY" GREAT WHITE HERON

Photo by William Greer

DINNER DILEMMA

In wildlife photography, being in the right place at the right time can make all the difference between taking a routine portrait of a wildling and capturing a once-in-a-lifetime shot of an unusual wildlife happening. Commission photographer William Greer tells of a recent "right time-right place" incident that resulted in the unusual photo on the facing page.

"While patiently focusing my lens on some wading birds along an Everglades canal, I noticed a great white heron, which had been standing in a typical 'frozen' stance of a hunting bird, suddenly take flight. It awkwardly crashed into the middle of the canal, as if imitating the dive of a brown pelican.

"After a few moments of thrashing and flapping, the heron gained its footing in the shallow water and stood erect. But instead of displaying a small fish or frog, a full-grown grebe dangled from the heron's beak. Perhaps it mistook the didapper swimming underwater for a fish.

"The heron seemed a bit unsure about what to do with its catch but finally staggered awkwardly across the canal, thrown off balance at every step by the struggles of its intended victim. Upon reaching the far bank, the grebe's weight, a valuable ally, began to take its toll. The heron, apparently intent upon following its instinctive role at any cost, put the catch on the ground, relaxed its grip momentarily, perhaps preparatory to swallowing its over-sized prey.

"At precisely this instant, the grebe's enthusiasm for its role in the drama dwindled. It streaked off across the sawgrass like a heavily-loaded seaplane struggling to become airborne. It no doubt carried with it a different impression of the great white heron and its feeding habits.

"The no-less-great heron, perhaps recalling an old adage about many a slip between cup and lip, ruffled its feathers, honked once, and stalked huffily back to the edge of the canal to look for something a little easier to subdue than an irate grebe."

FALCONER'S LICENSES

A written examination for all practicing and aspiring falconers is being given at Regional Offices of the Florida Game and Fresh Water Fish Commission. All falconers must successfully complete this examination regardless of previous experience and permits, in order to have a falconry permit renewed in 1977. A short time lapse will occur between testing and issuance of permits, therefore, current permits will remain valid until further notice.

Examinations will be administered by this agency through participation in the joint state/federal falconry program and all approved permits will be submitted to the U. S. Fish and Wildlife Service for co-signature. Examinations will be administered by appointment with the Regional Law Enforcement Captain and given only at the five GFC Regional Offices. Notes, books or other aids are prohibited while taking the examination. The examination will deal with raptor biology, natural history, care in captivity, identification, falconry techniques, terms and applicable laws and regulations. A knowledge of scientific names and obscure publications is not required.

The examination consists of 100 multiple-choice questions and a passing score of 80 percent is required. Once an applicant has passed the examination, no future examination will be required in Florida by state and federal regulations for renewal or for changes in permit classification. If a passing score is obtained, a GFC representative will inspect the applicant's falconry facilities and equipment. If a passing score is not obtained, the examination may be retaken after 30 days.

Appointments should be made by contacting the Regional Captain in your area at the toll free number listed below.

Panama City	Capt Martin Foxworthy	1-800-342-1676
Lake City	Capt. Frank Johnson	1-800-342-8105
Lakeland	Capt. Grady Phelps	1-800-282-8002
Ocala	Capt. David Starling	1-800-342-9620
West Palm Beach	Capt. Gwynn Kelley	1-800-432-2046

Please do not hesitate to contact one of the above officers if you have further questions regarding falconry.

PRIMER *for Spring GOBBLER HUNTING*

By George X. Sand

The big cypress head seemed suddenly to have become tensely quiet. From the corner of one eye—without moving his head at all—veteran turkey hunter Ken Holloway surveyed the younger man beside him in their palmetto blind. Johnny, a young father of 30, was sitting perfectly still, staring hard through the gloom.

Holloway brought his glance carefully back to the small clearing before them. The first light of dawn was infiltrating the swamp. It brightened almost imperceptibly giving a greenish, ethereal cast to several delicately curled resurrection ferns; decaying stumps of trees long since fallen; lichen covered vines that hung motionless from the thick canopy of semi-tropical limbs and leaves overhead.

Only one thing moved in this tense, ghostlike atmosphere: several thin shafts of swaying mist. These broke and mended again as they rose up from the otherwise motionless surface of a small pool of dark water. The undulating mist wraiths appeared to be dancing to a phantom orchestra not intended for human ears.

The older of the two men continued to remain expectantly still, warned by a sixth sense developed during 27 years of Florida turkey hunting. The cedar box call in his lap was silent now.

Then his patience was rewarded. A shadow separated itself slowly from a tangle of fallen, moss-covered tree limbs on the far side of the clearing. The bird that stepped carefully into full view was big. Its long beard nearly swept the ground as it advanced cautiously toward them.

Ken Holloway saw the alert, snapping black eyes—the scarlet wattles hanging from the small, never-still head—and his pulse beat leaped. *It's always been like this*, he thought as he reached over carefully to squeeze the younger man's knee—the signal to shoot.

The wary bird broke into a run as it heard the *snick* of Johnny's safety click off. The gobbler was already airborne by the time the gun roared—then roared again.

At such short range it was almost impossible to miss. A few dislodged feathers floated gently downward to where the big gobbler lay kicking convulsively against the earth.

But then the younger man made a mistake. He ran forward triumphantly to claim his prize.

"No, Johnny! *NO!*" Ken Holloway called after him.

Too late, the men heard the *whap-whap-whap-whap* of hurriedly departing wings! The second gobbler had been responding to Holloway's calling, too. Now it was out of range before either hunter could shoot.

"Once you've shot a bird just sit still for awhile!" Holloway reprimanded his companion, not unkindly. "Turkeys aren't frightened as badly by shotgun fire as many believe. I've seen them walk over to inspect a dead bird."

This incident took place on opening day of regular turkey hunting season in southwest Florida this year. Holloway, a landscape designer employed by Lewis Nurseries at Punta Gorda, estimates that he has killed between 160 and 175 turkeys in his lifetime. He had taken the younger man under his wing a couple of seasons earlier, determined to make an expert turkey hunter of Johnny (not his real name).

Over the years Holloway, and other turkey experts of this writer's acquaintance, have formulated helpful opinions with regard to what a successful turkey hunter should—and should not—do. Here are some of their suggestions:

Where to hunt: "Gobblers don't eat much during the morning, in the spring season," says Ken Holloway. "But they do have to have some food later in the day. So find a place where it is available."

A turkey will eat most anything, he says. Acorns, gallberries, pine mast, several kinds of growing green shoots, frogs—he has found such food, and more—in the craws of the many turkeys he has killed. Ken has seen gobblers walk along, dropping their heads now and then to strip fine seed from wild grasses. Once he found 18 large dragonflies in a big gobbler.

Turkeys also relish cypress mast—the marble-

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Photo by William Greer

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size greenish balls that such trees produce in season. And if you can find some pine mast—the seedlings with the single thin tail that cause them to spin as they fall to earth—Ken says "You've got it made. Particularly, if you find the pine seeds at a burn in the woods."

Cover is another important consideration. The veteran turkey hunter prefers to roost his birds. And when doing this he looks for "the tallest trees, over the deepest water, and the roughest ground." (Water serves as protection from cats and other predators.)

Turkeys like remote country and there you may find them roosting in a cypress strand, popash head, or whatever. Generally, the older gobblers will refuse, especially in spring, to roost with the hens and younger males. Should there be some pine trees growing near, yet removed from such places, look for the big gobblers to be resting there, says Ken Holloway. "Especially if the pines are tall, and on high, dry land." He doesn't know why this is.

In addition to food and cover, the hunter should look for turkey sign. (This can be done on a scouting trip before the hunt.) Some sportsmen confuse pig rootings, rodent diggings, or signs left by other birds, with turkey scratchings, but Holloway says there is no need for this. "Unlike hogs and other animals, a turkey works only at the surface. Too, these birds have long legs and there can be no mistaking the long, backward scratching strokes they use—sort of like a man swimming overhand."

Holloway prefers dusting signs to scratchings. If you can find where the birds have dusted in a high, dry area in the spring it usually means the gobblers are not far away, he says. The big birds usually dust between 10 a.m. and 1 p.m.

When to Hunt: If you have roosted a bird the night before (difficult to do, if you must work five or six days a week) you should be "put away"—ready to shoot—by the time there is legal shooting light. If you are left no choice but to walk through promising woods, hopefully to call a bird within range after hearing it, the odds against you are greater.

A spring gobbler will send forth his bellowing challenge first thing in the morning, even before flying down from his perch. When he does fly down he won't be interested in eating until later in the day. (It is said that during spring mating season the big toms can subsist largely from fatty deposits in the neck.) So don't expect to encounter a gobbler at daybreak simply because there may be ample food in the area.

Instead, when he leaves the roost he likely will be content to strut around a bit, letting go with a loud gobble now and then to attract some impressed hen. (Can't you just see him fluffing out those chocolate-bronze feathers, maybe dropping his shivering wing tips until they brush against the forest floor?) Come back at him with an enticing call of your own at this time and you should soon hear him running toward you eagerly to investigate!

How to hunt: Veteran turkey buffs can write a book on this subject. Here are some tips:

Don't wear bright colors. Camouflage clothing or at least drab clothing that will blend in with your woodland surroundings, is nearly a must. A friend of the writer who has also killed many wild turkeys, Orlando citrus grower Bo Randall, goes a step farther. The maker of the famed Randall sporting knives suspends a piece of camouflage cloth from his hunting hat. This hides his face when Bo is waiting in a blind. The little screen has two eye holes.

The blind should be well made, but not made so well that you can't see out easily. The hunter's hands, arms and legs account for most of the movement that is apt to spook a watching turkey. So design the blind in a manner that will effectively screen such movements, yet let you peer over the top of the screening, too.

Whenever possible, this writer builds his blind hard against a big tree, wide enough to fully protect his back. It is unfortunately true that the more proficient one becomes with a caller, the greater the risk he runs from some nut sneaking up behind to make a "sound shot"—mistaking him for a turkey!

Try to position the blind so the prevailing breeze, if there is any, will reach you from the direction in which you expect the turkey to approach when answering your call. If not, the wary bird may smell you.

Turkeys have very sharp ears, too. So before making your blind be sure to remove any dry twigs and leaves that could reveal your presence when you change position.

It's a good idea to bring along something to sit on. The earth can become both hard and cold during the long period it may be necessary to wait. Either of these discomforts can cause even the most determined hunter to move—invariably just at the wrong time!

Don't make a blind that sticks out like a sore thumb. And, once you are in it, don't smoke (even to hold insects at bay) or build a fire to keep warm.

If you are the restless type of hunter who prefers to walk through the woods in search of turkeys do not walk at a steady gait. Ken Holloway pauses often. He may even sit, waiting as long as 20 minutes while he watches and listens. Should he hear a bird calling (or answering) in the distance he will run toward it, to get quickly within calling range (about 300 yards).

"I particularly like to hear gobblers fighting in the spring," he says, adding that he has encountered as many as half a dozen of the angry big birds doing this at one time. This is the season of the love moon, and the toms apparently become crazed by jealousy.

END OF A SUCCESSFUL HUNT Photo by George X. Sand

The veteran turkey stalker says he has successfully crawled up onto turkeys, sometimes on his belly, for considerable distances.

The successful turkey hunter is one who has learned to call the birds, another way of saying he has taught himself to recognize the various sounds that turkeys make. Most novices are aware that the mature male birds gobble; that turkeys will give forth the familiar *kee-yawk, yuk-yuk-yuk* barnyard sound as they wander about; that a hen willing to mate will yelp (the most copied of all the calls); that the *pert* is the alarm call for the flock to scatter. But turkeys also whistle (young birds, particularly) and whine and cluck (the last much like chickens).

There are other sounds, too. And some forest birds can make sounds that closely resemble turkeys. A water turkey (anhinga) will make a noise much like a turkey flying up to, or down from, a roost.

Many different calling devices are available to hunters for fooling turkeys: the familiar resonant cedar box with chalked striker; the piece of slate with wooden peg scraper; the hollow wing bone from the bird itself; the breath-operated diaphragm which the hunter places in his mouth; and many more. The trick is to learn how to use these.

Tom Gaskins of Palmdale likely is (or, at least, has been) the best turkey caller in Florida. He has missed only two turkey hunting seasons in the past 56 years, and has repeatedly won the National Turkey Calling Contest. Tom recently spoke to about a hundred wild turkey aficionados assembled by Fred Babcock at his Cypress Lodge, in Charlotte County. (Babcock is a lover of wildlife and is president of a lumber company that owns 100,000 acres of land in that area. This vast tract, although largely posted, does serve as a breeding area for turkeys, quail, and other game—quite a bit of which escapes to benefit appreciative hunters outside the posted area.) Tom's advice to his listeners was simple: choose a turkey call that feels comfortable, then practice with that call *only* until you've mastered it.

(Gaskins manufacturers a good call himself that many Florida hunters prefer: the cedar box with cork stopper at one end.)

What gun to use: Most Florida sportsmen use a 12 gauge shotgun with magnum (3-inch) loads, since a gobbler, like a wild goose, is a big bird that requires considerable killing at times. Rifles are also permissible in certain areas. Hunters who like to work close to their quarry use shot as small as 7½, and aim for the head. Ken Holloway uses No. 4 magnum and aims for the base of the neck.

Don't shoot a bird at maximum range. A wounded turkey can often outrun a hunter, and likely will escape and die.

Licenses: A resident or non-resident state or county (where the hunting is taking place) license is necessary. An additional $10 permit entitles the holder to hunt on all of Florida's 45 Wildlife Management Areas, quite a number of which allow turkey hunting. (Check with authorities first. Residents 65 or older should also ask about a Senior Citizens Certificate.)

Season: In the Northwest Region of Florida spring gobbler season is from March 19 until April 10. In regions south of State Hwy. 50 the dates are March 5 to 27; north of this highway, March 12 to April 3.

(The Fisheating Creek Wildlife Management Area, near Palmdale, is providing spring gobbler hunting this year to a quota of 50 hunters on each of 19 two-day hunts, from February 1st through April 6th. Deadline for mailing applications was December 15th.)

Florida hunters are allowed to take one gobbler daily, a total of two for the season, and the possession limit is two. Shooting hours for spring gobbler hunting are one-half hour before sunrise to 1:00 p.m.

The turkey is probably the craftiest of all game birds and—while admittedly it will do a dumb thing now and then, don't count on such careless behavior. Any hunter who feels he's got turkeys figured out had better read a new book. No way. Nevertheless, the foregoing tips should increase your chance for a successful hunt for the big birds this spring.

I hope so. ●

Combo Rigs

whether trolling, casting or fly fishing, tandem lures can do the trick

By CHARLES WATERMAN

Tandem lures—one bait following another—have been employed almost since the first hungry man dangled a lure from a floating log. Since they work, maybe it isn't important just why they do, but it's a tempting subject.

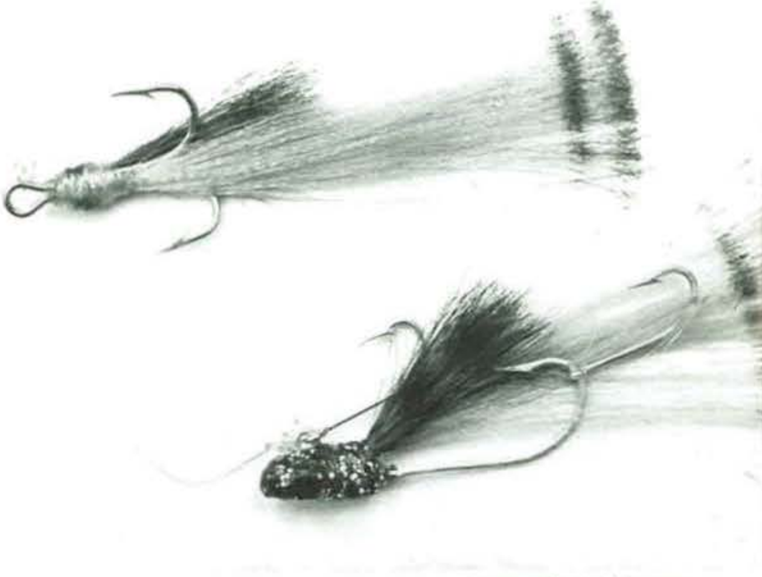
There used to be a lure made up of a fly with a small fish right behind it with his yap open. Maybe it's still made.

For that matter, the highly popular spinnerbaits might be called tandem lures because they include some shiny objects with a more bulky item right below them. Of course that's nothing new for the old Shannon Twin Spinner used the same principle and had been around since people cranked their cars by hand. Fly and spinner combinations are similar.

Break it down into four purposes. First, there's the idea of an attractor to bring the fish to the real thing; then there's the theory of it appearing that a small fish is about to grab something good and thus turns on the quarry's feeding instincts; then the scheme of presenting a variety on a single line —and the business of fishing simultaneously at two or more depths.

The extreme in tandem lures is that employed by some deepwater trollers for trout and salmon. Sometimes they use several feet of enormous spinners and flappers with exotic names such as the "Ford Fender." In some cases they taper down to a little bait of some sort that is aimed at fish weighing a pound or less. The fish probably comes from some distance to see what in tarnation is going on. He certainly doesn't intend to eat all of that hardware.

The "popping cork" has a similar function and is best known for its use on weakfish (saltwater trout). You put a piece of bait or a jig on a line with a float above it. You make the specially-shaped float pop on the surface and the fish comes over (probably thinking the pop is caused by another feeding trout) and grabs the bait. Sometimes he whacks the float and some fishermen use a surface plug with hooks instead of a harmless cork.



Photos by Charles Waterman

The "shad rig" is standard in Florida waters, little spoons or "darts" (jigs) running at different depths. Some fly fishermen use a big popping bug with a smaller fly or bug behind it for bass. School bass fishermen often throw a big plug with a trailer made up of something small. The "dropper" fly or flies is ancient history with freshwater trout fishermen.

If these combination baits weren't so difficult to cast without special handling they'd be more popular than they are. Throwing them requires a careful sweep of the rod tip that makes some of us impatient.

The spotted weakfish (speckled trout) of southern salt water is the target of an enormous variety of lures. Its tastes vary widely from day to day and even from hour to hour, bringing up the old bromide that "trout are stupid but very careful as to what they're stupid about."

Everett Collins (that's Route 4, Box 216, Saint Simons Island, Georgia 31522) produces a rather different combination that has worked on some big trout. Using the Collins Sea Fly and a small jig, he covers a considerable depth with what he calls Rig-A-Jig. The double-hooked Sea Fly is fastened with an 8-inch leader to a small swivel and the jig is also suspended from the swivel using a couple of feet of leader. The rig can be used with any sort of light casting outfit or can be suspended from a float.

Collins says to allow the outfit to sink to near the bottom and to retrieve it very slowly with twitches every five seconds. The jig and fly are both of dull-colored material. It appears to be a bit of squirrel tail with synthetic material for the long tail and the whole thing looks alive in the water. Gray shrimp?

The fly without the jig would undoubtedly work well on a fly rod. Its silhouette is similar to that of some successful streamers I've used.

Since graphite came along as a fishing rod material it probably causes more queries than any other thing regarding fishing tackle. It's new enough that not everybody has tried it and old enough that all of the big manufacturers are either using it or thinking about it.

Finally, the prices are beginning to come down. You'll find graphite rods in some cut-rate catalogs and I note that Browning (seller of Silaflex rods for some years) is now introducing a graphite line at prices much lower than some other manufacturers started with. Their flyrods are a little less than $100. For a while, nearly all graphite flyrods were close to $200. Spinning and plugging rods are considerably less, of course.

When graphite first became popular I prophesied the prices would come down soon. They didn't drop nearly as quickly as I had expected.

Early graphite had breakage troubles and the matter of replacing the casualties undoubtedly contributed to high prices. Durability is better now.

There has been some pretty frank advertising through which some companies have explained that their products will stand up better than others because of different ingredients. Rumor has it that unannounced changes in manufacturing methods have quietly evened things out and that durability is becoming about the same for different brands.

It's pretty obvious that nobody is going to announce that early mistakes are gradually being offset by changed production methods and that all rods later than a certain issue are going to be better. For that matter, it's hard for the average fisherman to even learn who makes rod blanks for a given seller. It was that way with glass, and still is.

It isn't necessary to badger a tackle dealer by insisting on the date his current stock was delivered but it might be wise to make sure you aren't shopping for the very first graphites produced. There have been some changes and a rod that broke for me a year ago just happened to be from old stock. The replacement is fine and has had a lot of use.

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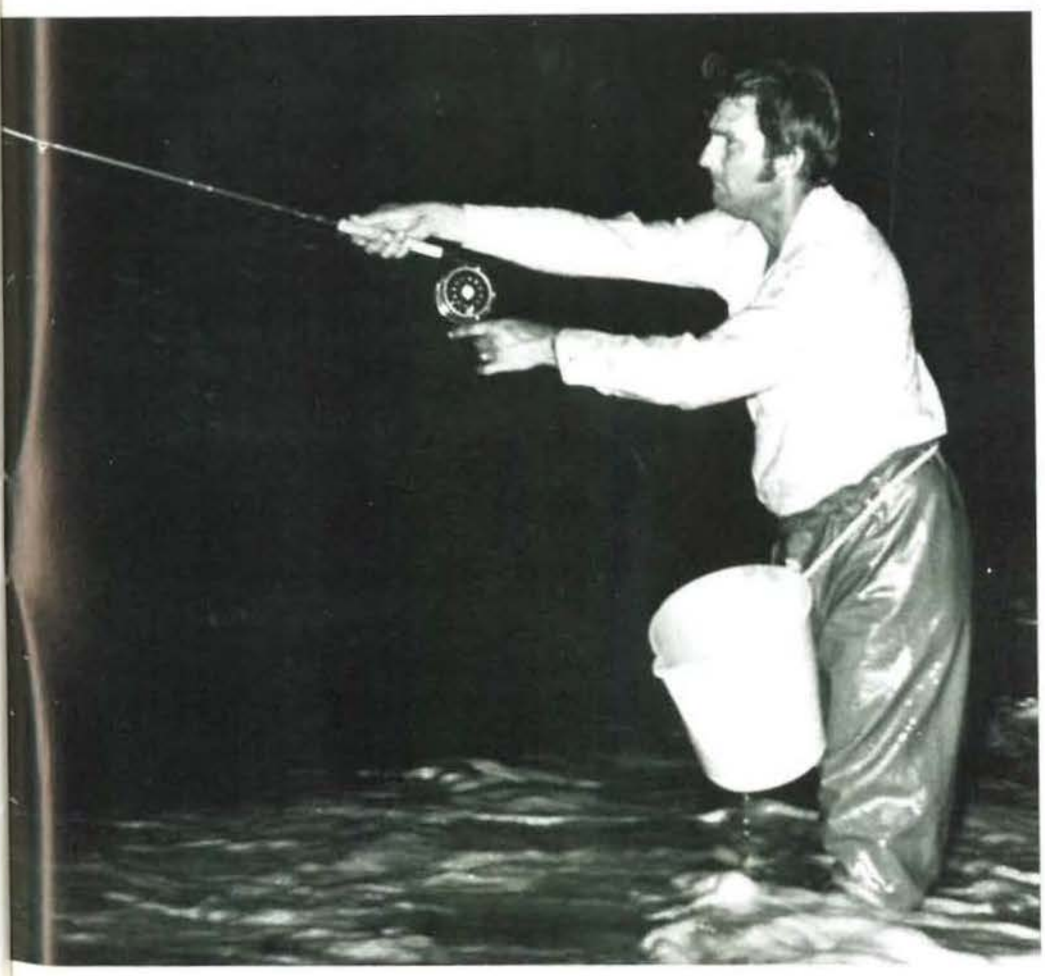


Gentle surf will tangle monofilament dropped into the water. While fly fishing for snook on the lower Gulf coast, Forrest Ware solved the problem by using a plastic bucket to coil his shooting line.

(continued from preceding page)

For a while there were a few rods, evidently made in a hurry when the graphite business started, that didn't have very good action. That will happen with anything new.

Since action in fly rods is probably more important than with any other sticks, graphite really started with fly rods. The other types came along later.

You can fish happily for a lifetime without graphite but it has some advantages for some kings of fishing. Some really fine anglers who don't watch their pennies at all are still wondering if they should try it. Here are some facts:

It's lighter than any other material so far. An extra-long graphite rod doesn't seem overweight.

Fly-casting instructors find that new pupils learn quicker with it.

Most graphite rods, having thin walls, are especially sensitive to nibbles and lure action.

Graphite seems to have a very slight advantage in most distance casting.

This is no passing fad. It's going to stay around.

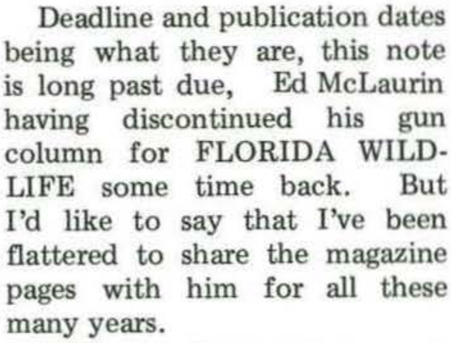
Diehard fly fishermen, some of whom forego all other fishing tackle, have gone to pretty drastic methods in recent years, most of their new efforts being aimed at getting down deep for one species or another. The "sinking head" is simply a short section of heavy line attached to light "running line" and after the heavy stuff is on its way the fisherman "shoots" the light material.

Tournament distance casters have employed very light monofilament for running line—but they have a nice place to coil it and may have a buddy to keep it laid out properly. Fishing casters let it dangle in the water, hold it in their mouths and even feed it into a bucket or "shooting basket" and use heavier mono. Even that tangles enough to produce strong language and nervous tantrums.

All sorts of wonderful things are done in the manufacture of monofilament. They can make it soft and limp or hard and stiff, and everything in between. The latest thing for those who use running line is "Amnesia" produced by the Sunset Line people. With very little "memory" it doesn't kink much when dumped on the boat deck or into the water and it's the best running material I've tried. In 20-pound test it's wonderful. Sunset probably won't get rich with it but they sure helped the diehards. In Florida, shooting line is used mainly in salt water but it comes on when you have a deep freshwater lake too.

Deadline and publication dates being what they are, this note is long past due, Ed McLaurin having discontinued his gun column for FLORIDA WILDLIFE some time back. But I'd like to say that I've been flattered to share the magazine pages with him for all these many years.

Ed has national respect as a gun authority. In his youth he was an outstanding marksman of national reputation, capable of putting holes in paper close together and at long range, a final qualification for the expert. ●



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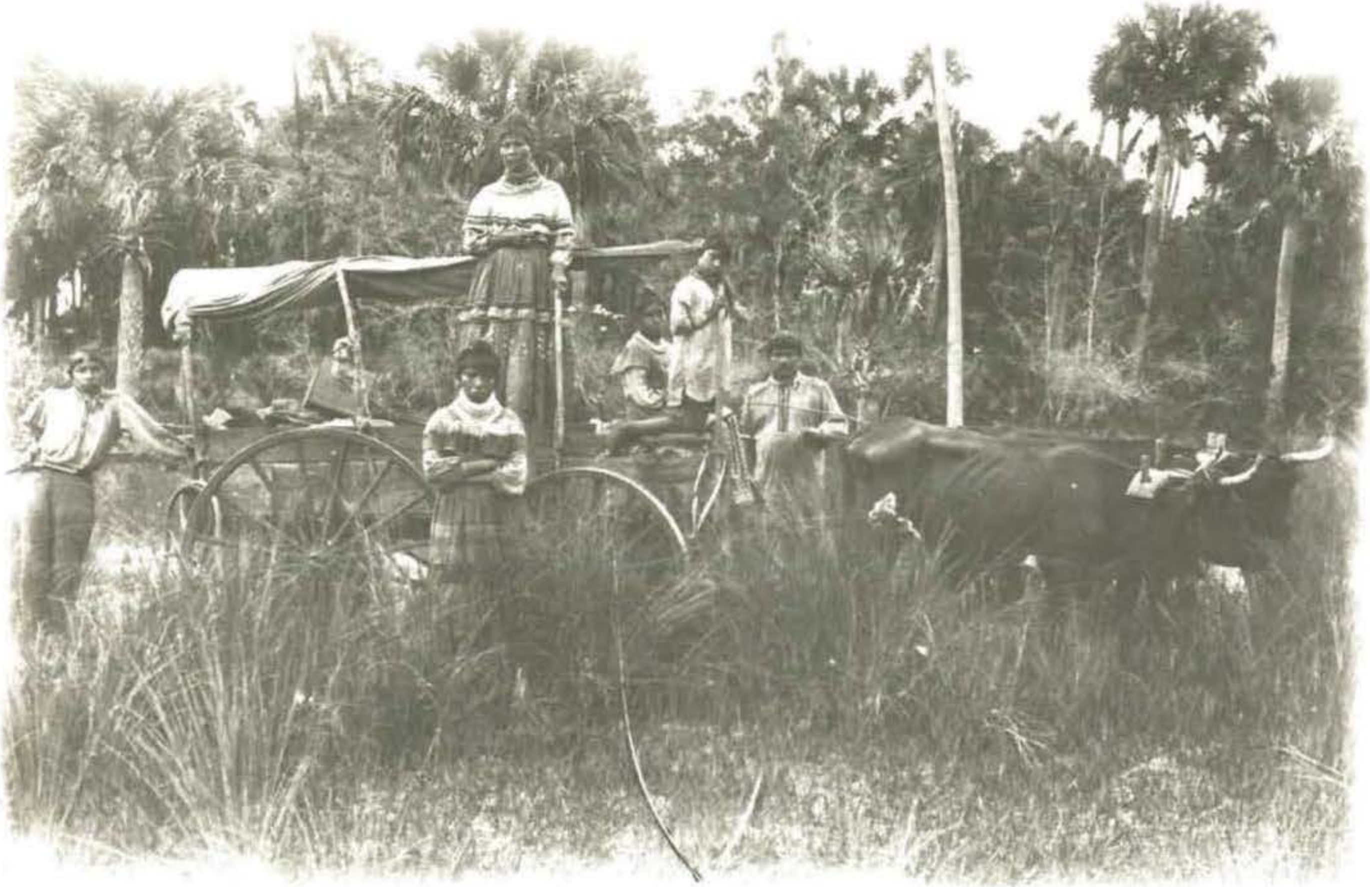
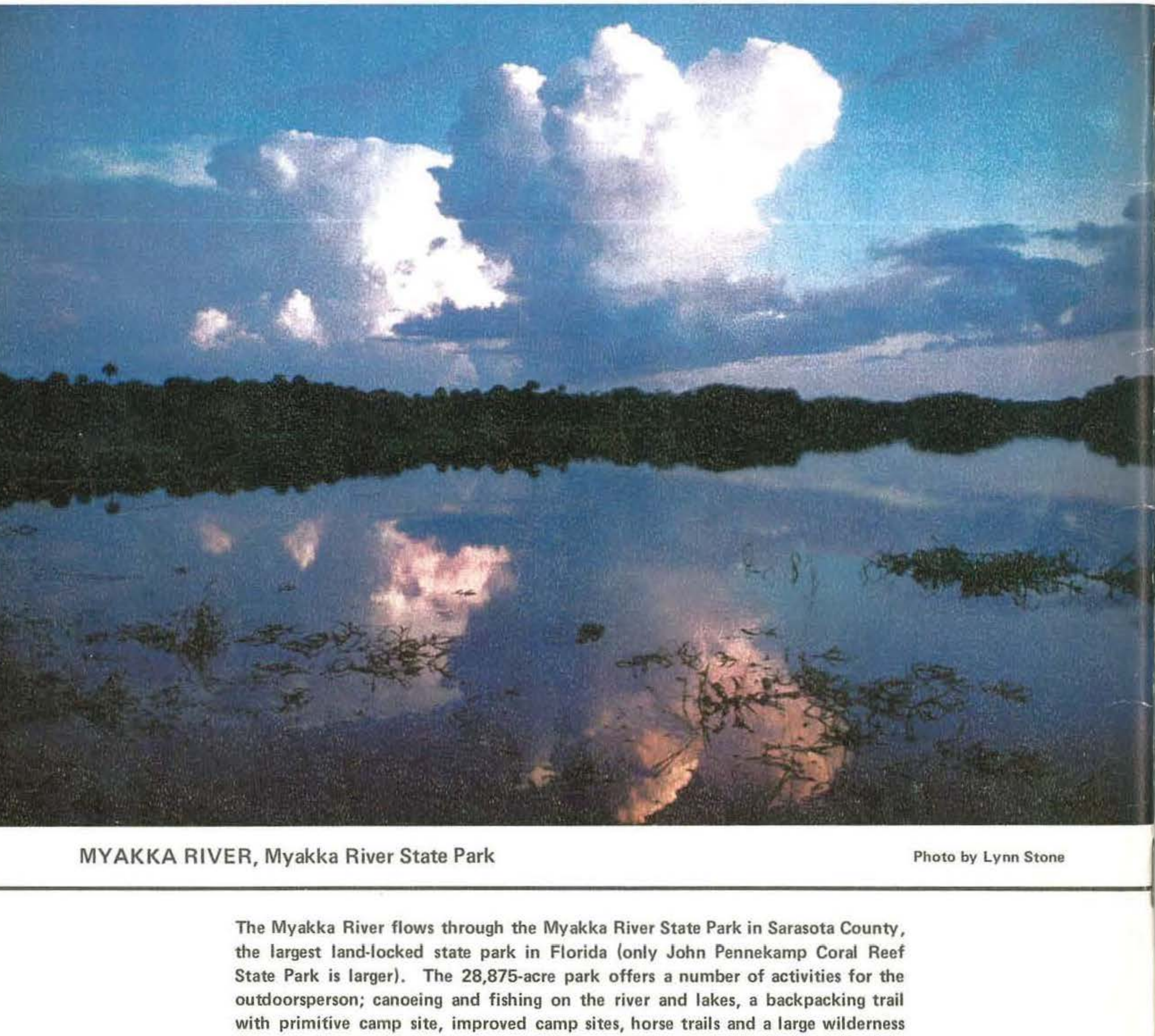


STUART FAMILY, CIRCA 1920

Photo by John Kunkel Small

Ox-cart loaded with boxes and baskets, this Seminole family was on a blueberry picking expedition when photographed by John Kunkel Small on Indian Prairie, west of Lake Okeechobee. Small, south Florida's most prominent botanical explorer, occasionally found Indians or the remains of their wagon wheel-shaped fires while traveling through that area during the early part of this century. Only a remnant of the original Seminole nation remained at that time and many of those lived between the Caloosahatchee and Kissimmee rivers. The Stuart family was probably part of the Cow Creek tribe of the Seminoles: the other tribe, the Miccosukees, lived farther south.



MYAKKA RIVER, Myakka River State Park

Photo by Lynn Stone

The Myakka River flows through the Myakka River State Park in Sarasota County, the largest land-locked state park in Florida (only John Pennekamp Coral Reef State Park is larger). The 28,875-acre park offers a number of activities for the outdoorsperson; canoeing and fishing on the river and lakes, a backpacking trail with primitive camp site, improved camp sites, horse trails and a large wilderness preserve. Boat and tram tours are available, enabling visitors to view much of the park's wide range of landscapes, including hammocks, prairies, marshes, lakes and the river. The diversity of wildlife habitat makes the park excellent for nature study and one of the best places in the state to see and photograph free-ranging wild animals close at hand.